Home Computing WEEKLY

An Argus Specialist Publication

JUNE 14-22, 1983 No. 15

38p

INSIDE

Microfair: special report

Software reviews for: VIC, Atari, TI-99/4A, Spectrum

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Best Sellers

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Your letters

THE SOUND OF SOFTWARE

EXCLUSIVE

VIRGIN released its first eight computer games today — and every one has a rock number on the other side by top musician Steve Hillage.

He was an obvious choice for Virgin Games boss Nick Alexander, for Steve Hillage is a computer enthusiast whose last two albums take their names from BASIC commands, For To Next and And Not Or.

Mr Alexander said: "It seemed like a nice idea and a fairly natural thing to do. After all, we are used to selling music on cassette.

"I wouldn't be surprised if more people take up the idea. If that happens we'll have to think of something new, but that's the great challenge of this business."

The tracks on the eight games — four for the Spectrum, three for the BBC micro and one for the VIC-20 — are taken from Steve Hillage's albums.

He said: "On future games I'll be doing specially written pieces. I've got quite a few ideas up my sleeve.

"Nick rang me and asked me to do it at short notice. I thought it was a great idea to do the two things together. My love of computers is evident — that's partly why he asked me."

Steve Hillage, 31, has had an Apple computer since 1979 which he uses for word processing, cataloguing his tapes and for research.

He said: "I'm particularly interested in the impact of computers on philosophical thought.

"As we will be getting more information faster through computers instead of printed material it will have an effect on our sense of time. It's going to affect the way we think."

His partner, 37-year-old Miquette Giraudy, also has a computer, a Spectrum, on which she is exploring graphics.

Steve Hillage sees a big future in linking music and computing, particularly with new recording media like compact discs which can store large amounts of data.

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GOSH for a fair deal

Software companies have got together to help their customers — and themselves.

After a series of meetings, nine of the big software names have formed an association with the working title Group of Software Houses, or GOSH.

And its code of conduct will include:

- A no-quibble guarantee on software carrying the association's logo
- Assurances of a fair deal for programmers and the software houses

The first members are Quicksilva, Artic, Silversoft, New Generation, Salamander, Bug Byte, A & F, CRL and Virgin.

Quicksilva's founder Nick Lambert and sales boss Rod Cousens brought them together

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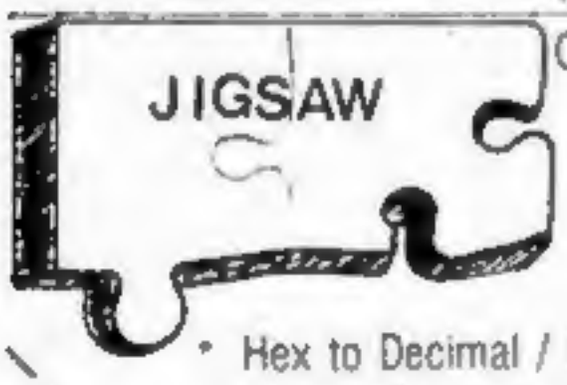

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HCW15

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Continued from front page

just a few weks after their High Court action against a software exchange shop.

Mr Cousens, who expected membership to quickly grow to 40, said the association would apply standards to what was an infant industry.

The association, affiliated to the 100-member Computer Trade Association, would also act over piracy and software libraries and advise on overseas agents.

He said: "If there are several of us working together we can be far more effective."

And Malcolm Evans, partner in New Generation, said: "Our code of conduct will mean the customer will know what he's getting and where he stands. It will give him the assurance and confidence in our members' products — he has some comeback if we don't live up to our promises."

Salamander partner Pete Neale said programmers would be protected by a code of conduct of their software houses made no real effort to market their programs or changed a few lines and claimed it as its own.

And the software companies would be protected if, for example, a programmer accepted equipment and assistance and then sold his program to another firm.

The companies were meeting last week to put the final seal of their association. Membership fees are expected to be in the £250-£1,000 range — with, possibly, a two-tier arrangement — and the plan is to have a full-time secretary.

Quicksilva, 13 Palmerston Road, Southampton SO1 1LL

• • •

Software by Jupiter

If you've got a Jupiter Ace, you'll be pleased to hear that the first of Jupiter Cantab's software range for the Ace is available now.

Of the 15 titles, three are for the Ace expanded by the recently-

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FREE ZX81 CATALOGUE
12 pages of the best programs for 10K ZX81
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leave name, address clearly 01-789 8546
Software Supermarket

Continued from column 1

announced 16K RAMpack. These are Gobbledegook (a Pac-man look-alike), Zombies and Potholes, and Othello. They all cost £7.95.

The other twelve include thinking games, action games, and a monitor which allows you to "explore the inner workings of the Ace", all for £5.95 each.

And there's more! At the Earls Court Computer Fair at the end of this week, Jupiter Cantab hope to show about five educational games, which according to Steven Altwasser will be "physics/maths oriented". A spreadsheet program, a chess program, an assembler and an adventure game are also in the pipeline.

At the show, the Ace will be seen putting a robot arm supplied by Cyber Robotics of Cambridge through its paces.

At present, all the Ace programs and the two RAMpacks are available only by mail order, and orders should be sent to Jupiter Cantab's new headquarters at the address below.

Steven Altwasser also had a message for Ace owners still waiting for a 48K RAMpack: "We haven't forgotten you. The RAMpacks should be sent out shortly — this week, we hope."

Jupiter Cantab, Cheshunt Building, Bateman Street, Cambridge CB2 1LZ

• • •

Lighten your load

A solution to the problem of ZX tape loading and saving — that's what Elinca is claiming for its new ZX tapeloader.

By filtering and stabilising the signal going into or coming from the computer, the loader is designed to provide a constant signal ideally matched to the ZX81 or Spectrum. It filters out hum from the tape recorder, and you can change from loading to saving just by turning a switch.

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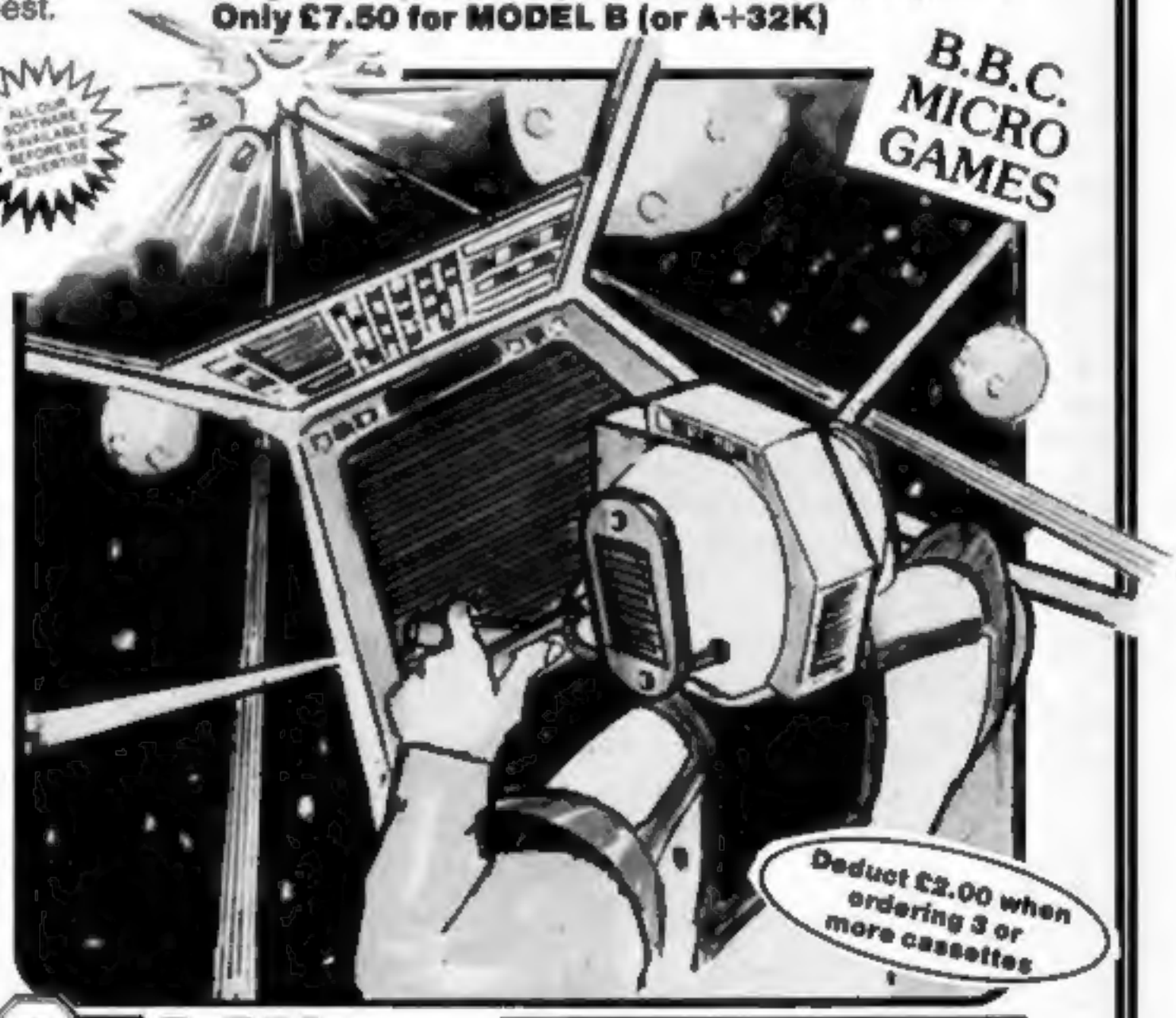

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Steve Hillage — musician and computer enthusiast

Continued from front page

He said: "In 10-15 years time you will be able to buy a package which will have music and graphics. It will be a new art form, like a musical sculpture on the screen.

"If they can get memory chips up to megabytes there will be 'records' less than two inches across which you'll plug into your headphones."

Although he has written in BASIC, he said: "I'm very aware of limitations of BASIC. In odd moments I'm learning LISP. They say that once you've learned it that it changes your conception of reality. I can't say that I've got that far."

Nick Alexander — putting music on software cassettes

Virgin Games is part of Richard Bransons's Virgin Records empire which has grown from a discount record store 10 years ago to a group of about 30 companies with a combined annual turnover of £85m.

Today's eight releases are to be followed by more batches of eight in September, October and Janaury.

As an experiment, Virgin record stores in Portsmouth, Sheffield and York will be stocking up to 100 Spectrum titles.

And Mr Alexander expects other record shops — not only Virgin's — to start selling computer software, although it will only be a small part of the market.

The reason, he said, was that the record industry had been hit by a cyclical decline. It would recover, but never to the same sales as the mid-70s.

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Some of Virgin's first releases — each inlay card has a picture and potted biography of the writer

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Sun brings price cuts

Good weather meant discounts on computers for visitors to the Birmingham Home Computer Show as exhibitors were determined to rival the sunshine.

Some hardware left the show at what one of the organisers described as "remarkable" prices.

Exhibitions manager Peter Freebrey said: "Attendance was less than we expected because the weekend was fine after weeks of poor weather and people went out and enjoyed themselves instead."

He said, however, that exhibitors were cheerful and did good business.

Blaby Computer Games brought out new software for the Spectrum and the Dragon, including Chopper Rescue, at £5.95, and Gold Digger, priced at £4.95, both for the Spectrum.

Success Services sold out of its Pickard Joystick Controller Interface — a device which allows the use of most popular joysticks for almost any keyboard configuration of Spectrum games.

Sue Harris, with Burslem Computer Centre's new Oric cassette, Three Games for Children

Symitar Software showed Dragon Link, which allows Dragon micros to communicate with each other by radio.

Mr Chip showed some of the latest in its growing range of Commodore 64 software, including Lunar Rescue, at £7.50.

And one of the most popular games for A & F was its Jungle Fever.

The show, held at Birmingham's Metropole Hotel, featured a competition with two computers as prizes — one for the winner and one for the school of the winner's choice.

And the winning entry was from D. Evans, of Stourbridge, West Midlands, who named High Park School, also in Stourbridge.

Here are the questions and the answers:

A How many different colours may be displayed by the Colour Genie: 8

B How many sound channels does the Lynx have: 1

C How many keys does a ZX Spectrum have: 40

D Maximum number of pixels displayed on a horizontal line in Hi Res on the Dragon 32: 256

E Number of Text rows displayed by the Sord M-5:24

F How many K of ROM are found in the Atari 400: 10

G Maximum number of pixels displayed on a vertical line in Hi Res on the Commodore 64: 200

H Number of Text columns displayed by the VIC-20: 22

J How many sound channels does the Oric-1 have: 3

Entrants were asked to total the numbers. The correct answer: 564.

The Birmingham Home Computer Show was organised by ASP Exhibitions, part of the Argus Specialist Publications, publishers of Home Computing Weekly.

Exhibition staff set up a computer advice centre at the show — now a feature of shows held by ASP.

Blaby Computer Games, Crossways House, Lutterworth, Blaby, Leicester
Success Services, 154 High Street, Bloxwich, Walsall, West Midlands WS3 3JT
Symitar Software, Hinckley Road, Leicester
Mr Chip, 1 Neville Place, Llandudno, Gwynedd LL30 3BL
A & F Software, 830 Hyde Road, Manchester M18 7JD

You could be on our pages

We welcome programs articles and tips from our readers.

PROGRAMS should, if possible, be computer printed to a width of 48 characters (use a new ribbon) and/or sent on cassette. Check carefully that they are bug-free. Include details of what your program does, how it works, variables you have used and hints on conversion.

ARTICLES on using home computers should be no longer than 2,000 words. Don't worry about your writing ability — just try to keep to the style in HCW. Articles most likely to be published will help our readers make better use of their micros by giving useful ideas, possibly with programming examples. We will convert any sketched illustrations into finished artwork.

TIPS are short articles, and brief programming routines which we can put together with others. Your hints can aid other computer users.

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Keep a copy of your submissions and include an SAE if you want them returned. Label everything clearly and give a daytime and home phone number if you can.

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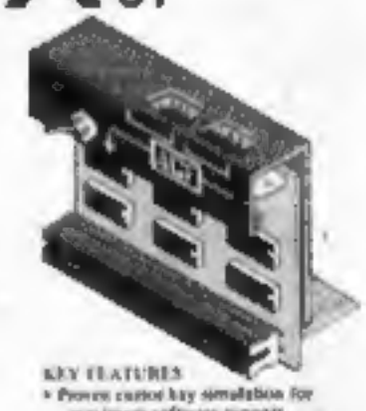

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Top Ten programs for the ZX81

1	Flight Simulation	Psion (1)
2	3D Monster Maze	New Generation (3)
3	Chess	Psion (4)
4	QS Scramble	Quicksilva (2)
5	Catacombs	J K Greye (6)
6	Galaxians	Artic (7)
7	Space Raiders	Psion (5)
8	Alien Dropout	Silversoft (–)
9	Avenger	Abacus (–)
10	Ten Games for 1K	J K Greye (8)

Compiled by W. H. Smith. Figures in brackets are last week's figures

Top Ten programs for the VIC-20

1	Intro to Basic 1	Commodore (6)
2	Race	Commodore (3)
3	Blitz	Commodore (4)
4	Strategic Advance	Commodore (–)
5	Panic	Bug Byte (1)
6	Asteroids	Bug Byte (7)
7	Cosmiads	Bug Byte (2)
8	Wacky Waiters	Imagine (5)
9	Amok	Audiogenic (8)
10	Intro to Basic 2	Commodore (–)

Compiled by Boots. Figures in brackets are last week's figures

Top Ten programs for the Dragon 32

1	The King	Microdeal (1)
2	Space War	Bug Byte (2)
3	Defense	Microdeal (4)
4	Alcatraz	Microdeal (5)
5	Katerpillar Attack	Microdeal (6)
6	Space Monopoly	Microdeal (–)
7	Mansion Adventure	Microdeal (–)
8	Chess	Dragon (8)
9	Typing Tutor	Dragon (–)
10	Dragon Trek	Salamander (–)

Compiled by Boots. Figures in brackets are last week's figures

Top Twenty programs for the Spectrum

1	Flight Simulation	Psion (1)
2	Penetrator	Melbourne House (3)
3	Jet-Pak	Ultimate (–)
4	Transylvanian Tower	Richard Shepherd (5)
5	3D Tanx	dk'tronics (6)
6	Hobbit	Melbourne House (2)
7	Horace Goes Skiing	Psion/M. House (4)
8	Ah Diddums	Imagine (–)
9	Arcadia	Imagine (7)
10	Chess	Psion (9)
11	Hungry Horace	Psion/M. House (11)
12	Orbiter	Silversoft (17)
13	Space Raiders	Psion (15)
14	Football Manager	Addictive (8)
15	Test Match	Computer Rentals (–)
16	Battle of Britain	Microgame (18)
17	Ground Attack	Silversoft (19)
18	3D Tunnel	New Generation (12)
19	Escape	New Generation (20)
20	Time Gate	Quicksilva (13)

Compiled by W. H. Smith. Figures in brackets are last week's figures

Programming What's the point?

It was less than a year ago that I first sat down at a microcomputer and gingerly tapped the keys. Having failed my Physics O-level years before, and knowing no more about electronics than how to change a fuse, I didn't have the faintest idea what went on beneath the keyboard.

For the first few hours I lived in fear. What if I typed in the wrong characters, and did some irreparable harm to my friend's computer? Even when reassured that this was unlikely to happen, I couldn't relax. How could I be sure, each time the disc drive whirred, that it wasn't wiping out valuable information?

But despite this nerve-wracking start, the experience left me hooked. I bought my own machine, together with several software packages. As a writer, the value of word-processing was quite obvious to me, and I could see that spreadsheet was useful even though I didn't have much in the way of finances to plan with it.

But buying ready-made software was, I felt, just the beginning. I ought to be learning BASIC and creating my own programs. At the very least, I ought to be copying them out of of the magazines I was buying.

So I worked painstukingly through the BBC manual. I learned how to set up a simple quiz, how to simulate the throws of a dice, work out percentages and the cost of installing windows. Each time I produced a program that worked, I had a tremendous sense of achievement, but there was always a nagging doubt at the back of my mind about the relevance of it all. Whenever I sat down to use the computer for something I really needed to do, like word processing, there was a program already written for the purpose — and written much better than I could ever hope to achieve myself. So what on earth was the point?

That's when I saw the light. I'd been deluded by the general micro fever into believing that it wasn't really legitimate to use my computer without knowing how to program it. But appreciating the benefits of the micro needn't necessarily have anything to do with understanding how it works. After all, some people spend hours on their cars, oiling this and polishing that, while others drive thousands of miles knowing nothing of what goes on under the bonnet. There's no "right" and "wrong" way to go about owning a car.

In just the same way, you can use the most complicated business programs, or play the most absorbing games, and still think there are little green men running around inside the micro doing all the work. How many people miss out on the useful things a micro could do for them because they feel that, in order to use a computer, they must first be expert programmers?

So that's why I've given up programming. As a member of a computer club, and part-time dealer in software, my interest in micros is as great as it ever was. But I no longer feel guilty when I can't remember the difference between PEEK and POKE, or get lost on the 8-bit bus.

If the game works, don't dissect it — play it!

Martin Foreman
Writer and software dealer
London

● This space is for you to sound off about the micro scene, to present bouquets or to hurl brickbats. Share your views by sending them to Paul Liptrot, Opinion, Home Computing Weekly, 145 Charing Cross Road, London WC2H 0EE. Please include your occupation and your interest in computing.

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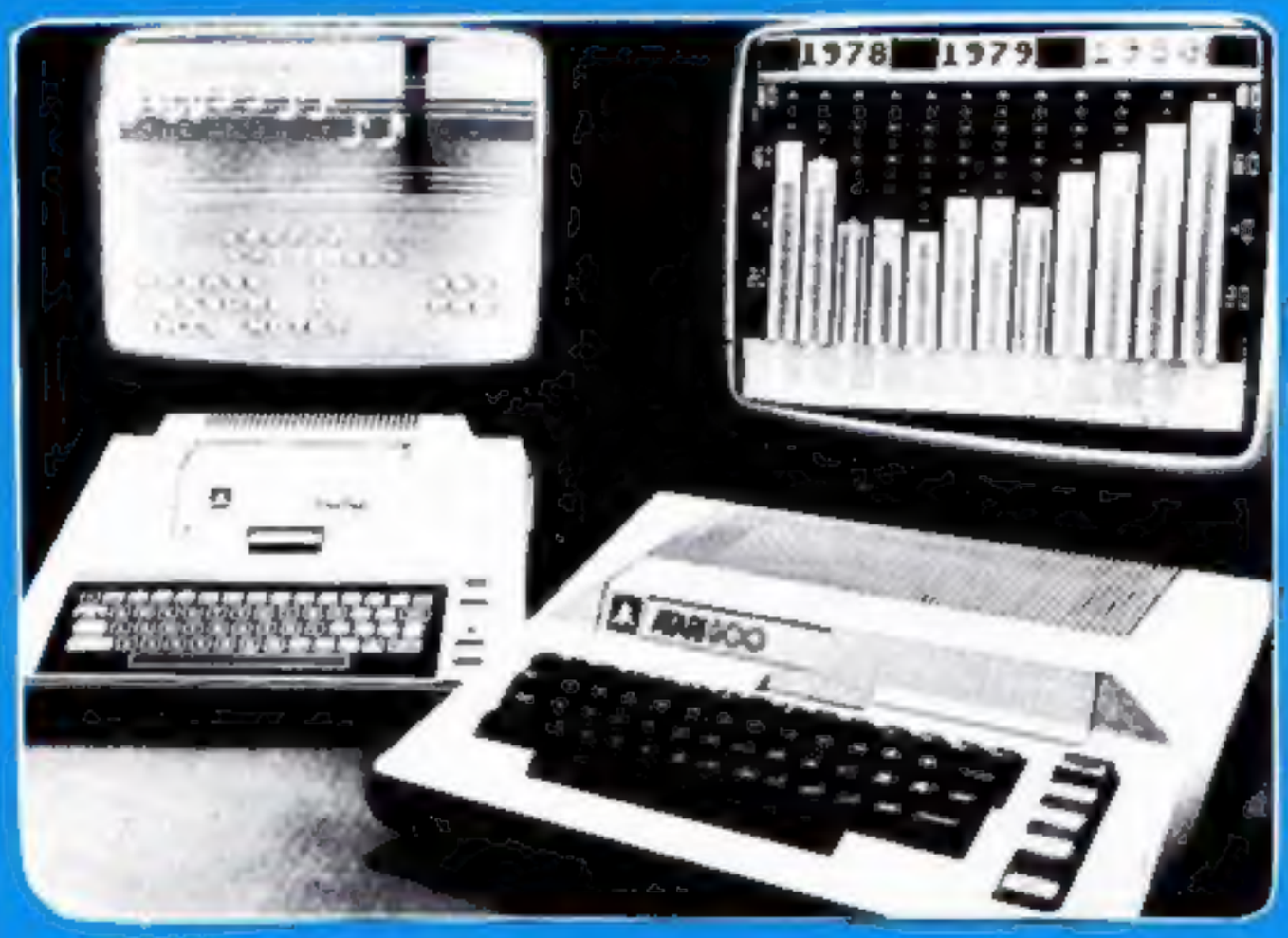

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Home Computing Weekly

HCW1583

Micro users are brighter, says survey

Recently, a study of more than 1,500 teenagers from all of our 50 states revealed that more teenagers were using personal computers at school than at home, that more boys than girls were using personal computers, and that most teens were just getting acquainted with personal computers.

The study also revealed that teenagers who are interested in computers are also teenagers who present the worst market for most other consumer products.

The firm doing the survey specified that marketers would have to address the teenage computer user much differently than they do typical teenagers. Since most marketing here is done in such a way as to insult the intelligence of virtually everyone who functions over a six year old level, this was encouraging news to me. Perhaps this is just because I am a computer snob.

However, I really do hope that it indicates that people (teenagers included) who use computers tend to think on higher than average level. These studies will continue to be done every six months; it will be interesting to study the results over the long run.

I can visualise the slogan now — Use a computer. Help stamp out stupid ads!

★ ★ ★ ★

On the software side, Thorn-EMI (a familiar name to you, I dare say) has been equally aggressive in announcing their latest offerings. The ad that stands out most in my mind is their two-pager.

One page shows Sly Stallone (of Rocky I, II, ad nauseum fame) holding a machine gun in his hands with a bandolier across his chest and looking fierce. On the opposite pae EMI announces First Blood and how it will "pump new blood into your business" — speaking to retailers of course.

The game is, of course, based on the movie of the same name that incredibly made over $6 million in its first weekend.

It's an awful movie I am told — lots of people over here have bad bad taste. Don't look at me, I've never seen it. I wouldn't even play the game.

★ ★ ★ ★

And now for something different. How about a magazine on cassette for the VIC-20? It is called Vixel and is available from Code Works. Each volume, one per cassette, contains an animated cover, and three programs.

This same publisher also produces an electronic magazine for the PET called Cursor, and this new effort is modelled to a large extent on its counterpart. Each program uses the VIC's graphics and color capabilities.

At present there are three volumes out. One and Two work with just a basic VIC, but Three requires both memory expansion and a joystick. A color screen is also recommended. Each volume is introduced by an animated table of contents or a cartoon character. You can bypass sections of the tapes if you wish.

Each game is professionally done, very user-friendly, fun to play, and virtually impossible to crash having quite excellent user-proof input routines.

Each volume comes with its own book of documentation containing instructions on the use of each game, and also a technical section which describes the routines used by each game in plain English (well, American anyway). The BASIC code is unprotected, and the publisher encourages the users to study and learn.

One of the more useful programs is called Superfont, in which you can program your own special characters by moving the cursor around the screen. If desired, you could change the entire character set to make special characters; the program is obviously designed to be used as a VIC programmer's graphic aid.

The magazines are priced quite reasonably at $12.95 each, plus shipping and handling. For details, write to Code Works, 5266 Hollister Suite 224, Santa Barbara CA 93111, (805) 683-1585.

★ ★ ★ ★

While attending the recent West Coast Computer Faire, I encountered a few new product lines (new to me at least).

One among these is Sierra On-Line. At least three of its products may be worth your while. These are called Jawbreaker II, Marauder and Frogger. Jawbreaker is Sierra's version of the tried and true Pac-man, which has been redesigned after hassles with Atari over certain similarities.

The Sierra game, designed to run on the Atari, is very nice indeed. In regular game play, a nice tune accompanies the action, and when the mouth is ready to consume the happy faces that otherwise chase it the music changes to a melancholy melody with lots of minor chords. Three channel sound is used which gives sound quality quite close to actual arcade games. Keyboard control works better than joystick control. At increased levels of play the motion speeds up and "gobble time" decreases.

The game comes with a pause option and a range of difficulty that can be user-selected to run from very slow to very fast. This game will run on either Atari, and is available on disc, ROM cartridge, or cassette.

Marauder is really two games in one. In one element your spaceship must avoid and destroy enemy anti-aircraft. The other element of the game is Berserk-like corridor shoot-out. If you like one aspect better than the other, you can play it all day long.

Over here, one of the biggest arcade games is Frogger, by Segu. Sierra's version really does do credit to the original as it includes good music, graphics, action, and two speeds of play.

Sierra has really put together a fine line of products for the Atari (and Apple as well). You can write to them for a full color catalog. Sierra On-Line, Sierra On-Line Building, Coarsegold, California 93614, (209) 683-6858.

★ ★ ★ ★

I got a good chuckle out of the joint announcement from Edu-Ware and Sweet MicroSystems who plan to market a product to be known as a bio-feedback mouse!

This wonderful little critter is to be hooked to the user in order to monitor things like galvanic skin response, temperature, pulse rate, and so forth. Then, in conjunction with cleverly designed software, it will computer the user's anxiety factor. Presumably this will shut off the display when you are about to have a heart attack after playing space invaders for 30 hours straight. Dare I say it again? Only in California.

That's it for this week.

Bud Izen
Fairfield, California

Microfair at Ally Pally: Your guide to the best of the new ideas

ZX Microfairs have become a regular fixture for Spectrum and ZX81 users. Paul Liptrot toured the stands to bring you details of the most interesting new products

Mike Johston moved his ZX Microfair to north London's Alexandra Palace — to the relief of visitors and exhibitors.

Although attendance was up by just a few hundred to around 8,000, there was twice as much space in the giant marques.

Since Mr Johnston, a 39-year-old civil servant, started his shows in September 1981 with a team of friends they have outgrown two other halls.

And as soon as the seventh show ended at its new venue he began planning his next for August 20 at the same place, hoping that Sinclair's long-awaited Microdrive mass storage devices will then be available.

After spending 12 hours on his feet, Mr Johnston said: "I was very pleased. It was a new venue — that's always a bit risky — and it was into the holidays and I was a little worried. But I was fairly confident we would get a good turnout.

"I was pleased we had the extra space. But it was still a little bit chokka at around 11am-12 noon

"I hold the shows roughly every three months because that's about the time when there are new products and the possibility of new hardware from Sinclair "

Mr Johnston said the number of exhibitors was up by about 40 to 150 and warned that stand space, at present £40 minimum, would cost slightly more, although the entrance fee would remain the same at £1.

He said: "Next time I'll be looking to do more features, like a talk by a well-known speaker. I don't know if we could get Clive!

"The chess competition did not get off the ground because of lack of support. I suppose that's because the programs that did not get off the ground because of lack of support. I suppose that's because the programs that did not win would not sell and the winning software would take all the business."

Sinclair's own stand was empty until 1pm because the company's van broke down on the North Circular.

David Pridmore — a winner with Star Defence

Here is Home Computing Weekly's exclusive selection of the new products at the Microfair:

Three 21-year-old university students took just five weeks to write Halls of the Things, an animated adventure for the 48K Spectrum. They are Martin Horsley, Neil Mottershead and Simon Brattel and the program is £6.50 from Crystal Computing.

Proud mum and dad were present when David Pridmore, 17, was handed a colour TV and £250 by JRS managing director John Stubbs. David, studying for GCEs, comes from Ilkeston, Derby, and wrote Star Defence, on sale at £4.95 for the 16K ZX81. JRS also launched Pot Pourri, two games and two utilities, at the same price, for both Spectrums.

Oxford Computer Publishing is adding to its range at the end of the month with a Full Screen Editor/Assembler, £9.95, and Finance Manager, £8.95, both for the 48K Spectrum. Finance Manager is 18K of machine code written by Oxford's 35-year-old software director Francis Ainley. On show were Test Tool, in Spectrum and ZX81 versions, and Master Tool Kit for the Spectrum, both at £9.95

RD Laboratories has brought out new software for sale with its £55.50 Digital Tracer. Using its pivoted arm, pictures can be traced on the screen — via 16K ZX81 or Spectrum — and printed out on a ZX Printer. The improved software adds machine code for faster standard shapes and a retrace option.

Our own ASP Software launched five new Spectrum titles — Clone-it/Renumber, Tube Cube/Pentacube and Spectrum, all at £5.99. Demon Knight, £9.99, and Detective, £6.50.

Terry Meakin, a washing machine service engineer who has been running Astro Software part time since January, showed three new £4.50 games cassettes for the Spectrum — Fruit Machine/Pontoon, Frogger/Crazy Chef and, for the 48K model only, Munch-Man. And there was also a new educational cassette at £8. Mr Meakin said: "I hope to go full time eventually."

Print 'n' Plotter Products had its Spectrum console on display. Costing £7.50, it is made from corrugated board, laminated in black vinyl, and assembles to hold Spectrum and printer with power supply inside.

Hints and tips for Spectrum programming are on a £1.99 cassette from PDQ. Called Tip Secrets, it is menu driven, contains some useful POKEs and is free of copyright. PDQ also had a £1.75 Spectrum dust cover in blue PVC.

CCS gave the first public showing of its novel Corn Cropper program, costing £6 for the 48K Spectrum, which simulates a 30-acre wheat farm. By taking the right decisions — on planting, spraying, hiring staff and so on — the player can build up assets of £¼m.

John Jones-Steele, 28, has written a new machine code game for the 48K Spectrum. Called The Wizard's Warriors, it costs £4.95 from Abersoft. Mr Jones-Steele is a shift leader in the computer department of Aberystwyth University — hence the name Abersoft

Kempston Micro Electronics, best known for its peripherals, brought out new conversion tapes to allow more games to be played using its joysticks. And the firm is launching three of its own games at the Earls Court Computer Fair, which opens on Thursday.

Speech and music for the ZX81 and the Spectrum are offered by two new plug-in modules from Timedata, which also publishes a range of computer books. The ZXM Sound Box, with its three-channel sound chip, has a built-in amplifier and speaker and its nine-pin input-output socket can also be used for joysticks. It costs £29.95. The ZX Speech Synthesiser costs £32 50. They work on both computers and other peripherals, like RAM packs, can be added.

DLan, short for display language, is a new commercial display system for the Spectrum which, says Campbell Systems, is ideal for shop windows. One buyer said he planned to use it for title pages on his video tapes. DLan, on cassette at £7.95, allows the choice of up to 11 type fonts.

Assassin Software, set up just two weeks ago by retailers Dave Town and Keith Nathan, showed its first tape — a frogger-type game called Toad's Travels, at £4.95 for the 48K Spectrum. In about a fortnight there will be a second, Mogadishu, a dungeons and dragons-type adventure for the Spectrum, costing about £6.95 and planned to be the first of a series.

Richard Shepherd says his new game, Devils of the Deep, outclasses his best-seller Transylvanian Tower. Costing £6.50, the new tape is a 3D graphics adventure for the 48K Spectrum. The firm, run by Mr Shepherd and his wife Elaine, moves to new offices in Maidenhead High Street soon. Their new commercial manager is John Slathouse, formerly with Dixons, and Mrs Shepherd is joining the firm full-time from October.

Two new adventures were released by Phipps Associates. Both costing £4.95 for the Spectrum, they are The Pharoah's Tomb and Magic Mountain. Three more tapes for the 48K Spectrum are due out over the next few weeks. They are Greedy Gulch, a £4 95 adventure, Black Planet, an arcade game priced at £5.95, and The Forest, costing £9 95, which simulates the sport of orienteering and comes with a comprehensive booklet.

Up to six computers can be linked together using Multiload from Network Computer Systems which says time and money can be saved by clubs and schools because only one cassette player is needed for each group of computers. Prices start at £8.75 to connect four Spectrums or Jupiter Aces to £18.70 for six BBC, Oric, Dragon or Lynx micros. There is also a range of cables.

New software house Protek grew out of an Edinburgh marketing consultancy. Headed by ex-mechanical engineer Gordon Hewitt, it now has a £14.95 joystick interface for the Spectrum and three tapes — two for the ZX81 and three for the Spectrum. Protek's flight simulator, for the Spectrum, features a BAC 1-11 coming in to land at, appropriately enough, Edinburgh Airport.

Called Airliner, it costs £5.95

Two challenges are thrown down by Vortex in its two new Spectrum games, both priced at £5.95. In Android One: The Reactor Run — the first of a series — you have to destroy a reactor, dodging obstacles and overcoming mutants, and Gun Law casts you as a bounty hunter.

R & R featured Oric Golf and, for the Spectrum, and, at less than £15, a light pen for the Spectrum. The company already markets a version for the Dragon.

Quest, a two-man partnership selling their Black Hole game for the Spectrum, had a busy weekend — as soon as the Microfair closed they went off to the Birmingham Home Computer Show.

Two new products launched at the show by Camel were Bio Prom 81, a ZX81 EPROM programmer at £91.94, and an eight by eight input-output card for the Spectrum costing £21.27.

Education specialists Calpac featured its two tapes for youngsters, at £7.50 with eight or four programs per tape, and its four-program tape for O-level or CSE Chemistry at £5.50.

Students (from left) Martin Horsley, Neil Mottershead and Simon Brattel — writers of Halls of the Things.

Norman Robinson, trading as Robsoft, was selling his first tape, Zap the Alien, a £3.95 word game for the Spectrum.

Andrew Giles, 18, has written two games for recently-formed Apocalypse Software. They are Galactic Jail Break and Snake, both at £4.90 for the Spectrum.

Fuller Micro Sytems showed its FDS keyboard — which includes a space bar — for the ZX81 and Spectrum. Costing £39 95, it replaces the original casing and, says Fuller, can be fitted in 10 minutes. Fuller also has dual and Centronics-type interfaces for the Spectrum at £49.95 and £35 respectively.

Money and free champagne were being dished out on the Automata stand. The champagne was real enough, but the "Piman pounds" were, in fact, fakes offering £1 off Automat cassettes, including Automonopoli, £6 for the 48K Spectrum, and its range of Pimania games for Spectrum, BBC, Dragon and ZX81.

Gold Mine, a £4.95 Spectrum strategy game, was brought out for the show by dk'tronics, which makes a wide range of software

Video Software says its new cassette, Superview 48 for the 48K Spectrum at £5, gives you a personal Viewdata system, allowing up to 48 pages to be created and recalled on demand

Softest had an interface for Tandy's colour printer/plotter at £35, with an improved version out soon.

FIZ is an interface card for the ZX81 which, when plugged into a £5 expansion bus, allows the ZX81 to use disc drives. Macronics, which sells FIZ for £15, says it will SAVE an 8K program in 20 seconds and LOAD in just 10 seconds. Macronics also brought out three new games for the 48K Spectrum at £4.95 — Ant Attack, Alien Insects and Trog — all written by 17-year-old Nigel Stuart. Coming soon: Sounds Easy, a Spectrum sound processor, and a 3D sketching program called Birds Eye View.

Bytewell, a retailer until now, brought out its first program — Hidden City, described as "an adventure-cum-shoot-'em-up game" for the Spectrum, at £5 95. Proprietor Brian Brown started trading from home in January because he was looking after his sick wife.

AGF showed its Programmable Joystick Interface, costing £32 95 for the ZX81 and Spectrum with a free demonstration program called Video Graffiti. AGF, which also markets joysticks, says the new interface surpasses the specification of its Interface Module II.

PSS launched Light Cycle, a strategy game for the Spectrum at £5.95...compiled with the company's own M-Code compiler.

Dai Davis, a 53-year-old physicist, has his wife Beryl to thank for his Music program, written for the 48K Spectrum and marketed at £9 by Hilton Computer services. He said: "My wife belongs to a chour and they could never find music in the right key — it was always too high. So I wrote this program." Music allows notes to be written on the screen, played back, speed increased or decreased and turns the Spectrum into a sort of musical typewriter.

Richard Turner, whose Artic Computing brought out a batch of five new Spectrum tapes, said he was launching another six to eight titles, probably next month, including cassette for the VIC-20 and Dragon. The titles lauched at the show were Cosmic Debris and 3D Quadracube, both £4.95, Spectrum Chess II, £9.95, 3D Combat Zone, £5 95, and Sys 64, £6 95

In a few weeks ZedXtra will begin production of a universal joystick controller for the Spectrum which, says the company, will be able to use all the 40 keys. Plugging into the rear edge connector, it would work with all Spectrum software. Price is expected to be £25.

Seven new tapes for the Jupiter Ace were launched by Remsoft, including a £6.50 ZX Printer Driver which allows the Ace to use Sinclair's £39.95 printer. In the pipeline is software to link the Ace to Tandy's colour printer/plotter and to the Amber printer. Also at £6.50: three games cassettes — Aliens, Five Compact Games and Graphic Golf — plus Protector, which guards against copying. Ace Assembler and Equations cost £7.50 each. Members of Remsoft's Jupiter Ace Users' Club get the tapes at £1 off.

Hilderbay offered its Centronics-type interface, simple word processor, cable and plug at £45 for the Spectrum.

Gilsoft brought out White Noise and Graphics which, for £5.95 in versions for either Spectrum, adds new screen commands and creates white noise for sounds like explosions and gunshots. The firm also has a range of other software, including The Visual Processor at £5.95 and Time Line and Tasks, a two-game cassette at £4.95. Two firms had tapes which will make back-up copies on the Spectrum — The Key from Keysoft and Zap from Scimitar.

Phone Checker, at £4 from Wimsoft, uses the Spectrum or ZX81 to keep track of phone bills and —if several people use the phone — to remember how much each person owes.

On the way from Abbex is a new range of at least programs for the Commodore 64, VIC-20 and Oric, plus educational tapes for the Spectrum. They are due out in August, but at the show the company had Supertalk, a £5 95 speech program for the Spectrum.

Run a payroll of 50 staff with a 48K Spectrum, says Byte One, which has brought out Payroll Program at £19.95. Byte One says it will handle hourly, weekly and monthly pay, print detailed payslips and has several other features.

Your ZX81 can keep your home secure, according to Industrial and Commercial Computers. The company produces a Home Security Unit at £57.50 which includes an interface unit to link with window and door sensors and pressure pad. More sensors, smoke detectors and ultrasonic alarms could be added

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Plaza Star Software showd its new game for either Spectrum, Spectral Repeat — a memory game which, says the firm, tests observation and concentration.

Richard Turner, of Artic Computing

Where to find them

Crystal Computing, 2 Ashton Way, Sunderland SR3 3RX
JRS Software, 19 Wayside Avenue, Worthing BN13 3JU
Oxford Computer Publishing, 4 High Street, Chalfont St Peter, Bucks
RD Laboratories, 20 Court Road Estate, Cwbran, Gwent
ASP Software, 145 Charing Cross Road, London WC2H 0EE
Astro Software, 28 Spinney Rise, Toton, Notts NG9 6JN
Print 'n' Plotter Products, 19 Borough High Street, London SE1 9SE
PDQ Software, Parsley Rve, Hilders Lane, Edenbridge, Kent
CCS, 14 Langton Way, London SE3 TTL
Abersoft, 7 Maes Afallen, Bow Street, Dyfed SY24 5BA
Kempston Micro Electronics, 180A Bedford Road, Kempston, Bedford MK42 8BL
Timedata, 16 Hemmels, Laindon, Essex SS15 6ED
Campbell Systems, 15 Rous Road, Buckhurst Hill, Essex IG9 6BL
Assassin Software, 10 Ash Road, Leeds 6
Richard Shepherd Software, Freepost, Maidenhead, Berks SL6 5BY
Phipps Associates, 99 East Street, Epsom, Surrey KT17 1EA
Network Computer Systems, 39 Bampton Road, Luton, Beds
Protek Computing, Clydesdale Bank Buildings, High Street, South Queensferry, Edinburgh
Vortex Software, 280 Brooklands Road, Manchester M23 9HD
R & R Software, 34 Bourton Road, Tuffley, Glouc GL4 0LE
Quest Micro Software, 119 The Promenade, Cheltenham, Glouc
Camel Products, 1 Milton Road, Cambridge CB4 1UY
Calpac Computer Software, 108 Hermitage Woods Crescent, St Johns, Woking, Surrey
Robsoft Computer Software, 48 King Edward's Road, Ponders End, Enfield, Middlesex EN3 7DB
Apocalypse Software, 5-7 Stert Street, Abingdon, Berks
Fuller Micro Systems, ZX Computer Centre, 17 Sweeting Street, Liverpool 2
Automata U.K., 65A Osborne Road, Portsmouth, Hants PO5 3LR
dk'tronics, 23 Sussex Road, Gorleston, Great Yarmouth, Norfolk
Video Software, Stone Lane, Kinver, Stourbridge, West Midlands DY7 6EQ
Softest, 10 Richmond Lane, Romsey, Hants SO5 8LA
Macronics Systems, 26 Spiers Close, Knowle, Solihull, West Midlands B93 9ES
Bytewell, 203 Court Road, Barry, South Glamorgan
AGF Hardware, 26 Van Gogh Place, Bognor Regis, West Sussex PO22 9BY
Personal Software Services (PSS), 452 Stoney Stanton Road, Coventry CV6 5DG
Hilton Computer Services, 14 Avalon Road, Orpington, Kent BR6 9AX
Artic Computing, 396 James Reckitt Avenue, Hull HU8 0JA
ZedXtra, 5 School Lane, Kinson, Bournemouth BH11 9DG
Remsoft Computer Software, 18 George Street, Brighton BN2 1RH
Hilderbay, 8/10 Parkway, London NW1 7AA
Gilsoft, 30 Hawthorn Road, Barry, South Glamorgan
Wimsoft, 20 Brookside Road, Wimborne, Dorset BH21 2BL
Abbex Electronics, 20 Ashley Court, Great Northway, London NW4
Byte One, 69 West End Park Street, Glasgow G3 6LJ
Industrial and Commercial Computers, Tremadart Mill, Duloe, Liskeard, Cornwall PL14 4QB
Plaza Star Software, 8A Wharf Close, Poole, Dorset

Dai Davis — music on screen

Just when you thought it was safe to switch on your VIC. . .

In these games, you'll find yourself under attack by opponents from tortoises to anti-aircraft guns. Fresh from the fighting, our reviewers hand in their battle reports.

Multitron £7.95

Sumlock, Royal London House, 198 Deansgate, Manchester M3 3NE

Now and again a program really catches your fancy. This one went one better — it really got me excited. Excellent graphics — the variety of targets and the way they move, fantastic!

There are in fact, six screens of different targets, and each attacks differently; static, diagonal, zig-zag, vertical dive bombing

Best of all is the tortoises. They move a bit then dodge into their shells and become impervious to your fire. To cap it all, on clearing the last screen, you have a nightdrive type, keep-the-car-on-the-road course to complete.

But it's not just the variety packed into an unexpanded VIC that got me. There's the ammunition supply. To stop you just leaning on the fire button, the supply runs down as you fire and is slowly replenished when you pause

Anyway, some of the targets will stop in their tracks rather than walk into a constant wall of vertical firing.

The kindest touch of all, other programmers please note, is that each screenful waits for you to start before it attacks you, thus allowing you to get your breath back/sip your coffee at frequent intervals. And you get four lives!

The top 2% of games experts may find this on the easy side. But for the rest of us it's an out and out winner.

B.J.

instructions	0%
playability	95%
graphics	95%
value	92%

Chopper £6.95

Sumlock, Royal London House, 198 Deansgate, Manchester M3 3NE

Chopper is a very fast game, and though keyboard control is available I wouldn't recommend it. You control a helicopter bombing lorries, tanks and missile-launchers. Ranged against you is an anti-aircraft gun moving side-to-side very fast firing random flak.

Flying hours are further curtailed by missiles from the launchers and this pilot was not skilled enough to discover whether the fast-flying missiles could be dodged long enough to earn bonus points.

Flying into the ground or screen sides are elementary navigation errors, but it's hard that crashing into the sky (screen top) also costs a life! 600 is said to be a high score. I got nowhere near it.

Graphics are realistic — the simulation of rotating chopper blades is a nice touch, but the chopper crashes could be quicker. Sound effects are satisfactorily noisy.

Answering NO to REPLAY? produces nothing. Once in program you stay in till the power fails. Is this a software device for encouraging addiction, I wonder?

R.F.

instructions	30%
playability	60%
graphics	75%
value for money	70%

Man on the Run £6.95

Sumlock, Royal London House, 198 Deansgate, Manchester M3 3NE

You are surrounded by a horde of attackers positioned around the edge of the screen. They attack two at a time and try to dispose of your four lives.

You can move round the screen by using the keyboard and can fire your gun to kill the attackers

your gun to kill the attackers

Joystick control can be used, but for once I found that keyboard control was better. During the first few games orientation of your defender is a little difficult but experience soon finds your man darting around the screen bumping off the enemy.

After disposing of the first screenload of attackers a second lot appears, moving faster and worth more points. A bonus is added to your score if you avoid losing a life.

A straightforward game, ideal for children, who will no doubt play it for hours on wet Saturday afternoons.

V.R.

instructions	60%
playability	55%
graphics	50%
value for money	60%

Galactic Abductors 16K £7.90

Anirog Computers, 26 Balcombe Gardens, Horley, Surrey

This is a nice version of an old plot. You control a gun which can be moved from side to side along the bottom of the screen and with it you must protect five humanoids from the attention of swarms of bird-like creatures

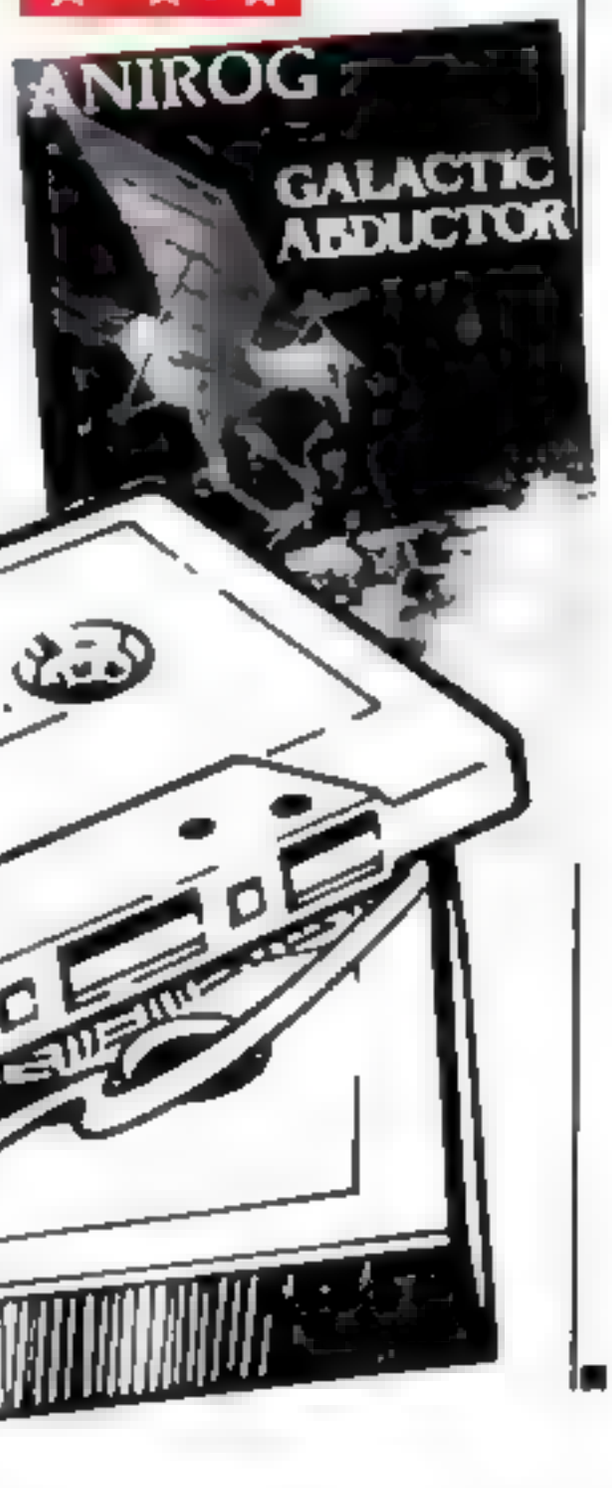
These birds are tough to kill and require several direct hits before they bite the dust. From time to time the birds lay eggs which fall to the ground, hatch and liberate nasty little objects which run after your gun and try to destroy it.

The loss of all men results in you losing a life. You start with five lives and pick up extra lives as you score points.

A very smooth game using an enlarged screen, excellent graphics and unusual sound.

A.W.

instructions	75%
playability	85%
graphics	95%
value for money	90%



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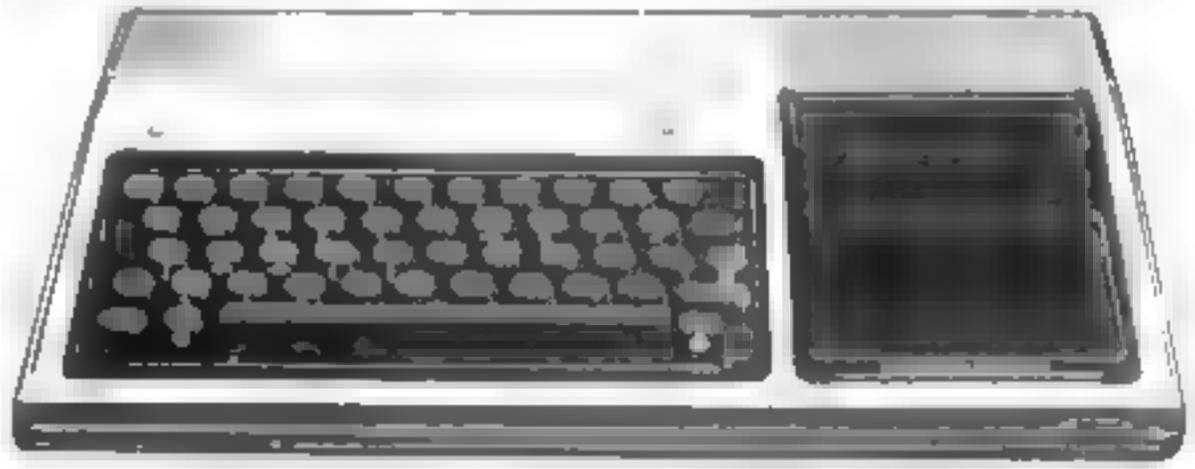

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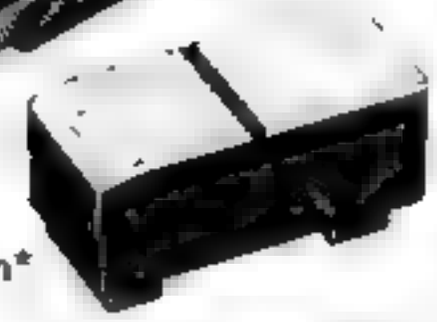
OR



The TI Solid State Speech* Synthesiser
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LETTERS

Send your letters to Letters, Home Computing Weekly, 145 Charing Cross Road, London WC2H 0EE. Don't forget to name your computer — the best letter could win £5 worth of software. Queries cannot be answered on this page

Pros and cons of the Oric

As an Oric owner who previously owned a Spectrum machine, I'd like to make a few points following John Shiab's letter in your issue of May 17.

Firstly, no review that I have read said anything about the Oric "wiping the floor" with the Spectrum. From my own experience, neither the Oric nor the Sinclair version of BASIC is any more difficult than the other, and the Oric's report codes are just as good as the Spectrum's. The Oric does have syntax checking, but the program has to be run before it will operate.

On the subject of tape loading, I feel that John Shiab's complaints are a bit unfair — Sinclair machines are notorious for their tape control. I might add that I always use the fast transfer rate, and have never had any problems with it.

I appreciate, though, that some of the blame must rest with Oric itself. There is no excuse for marketing a non-existent product. The micro was first advertised last November. Then in the January/February issue of Oric User, it was reported that a launch party was held in late-January! And because of rushed marketing, the micros sent out naturally had a lot of faults, some of them as fundamental as the wrong chips being used.

Production errors aside, I reckon that the differences between the two machines even out. The Oric's main disadvantage now is that there is a distinct lack of software available for it. This situation is slowly but surely being rectified, with adverts gradually starting to appear in magazines such as HCW.

Mark Phillips, Eastleigh, Hants

New address for SOBAT

The SOBAT computer club (Leyton) has a new contact address. Although the club still serves members in East London, details, membership forms etc should now be obtained from the address below (or phone 01-556 5423, weekends only).

Due to rising costs, we've also has to put our membership fee up to £4 per annum.

T.A. Kayani, B25 Berridge House, Hillfield Road, London NW6

Program's Chinese puzzle

Than you for reviewing my Chemistry program in HCW (issue 12) and the favourable comments on it.

However, I would like to clarify the reviewer's point about a bug which caused "Chinese" text to appear in the Compound program. I loaded five different cassettes, and could not induce the Chinaman to show his face unless I included a line 3000 over 1. The reviewer suggested including line 3000 over 0, but this should not be necessary.

However, if anyone has bought an Alchemy tape which is not perfect I will certainly replace it immediately.

Malcolm Barnes, Alchemy Software, Hull

Puzzled? Ask a teacher

I can appreciate Dorene Cox's points (One Woman's View, HCW 13) on the problems faced by the microcomputer novice. Two years ago I went into what was then the only computer shop near me and asked for a book on computing for the complete beginner. I was eventually sold an American book full of jargon.

Things are a bit better now that more books are available on the subject, but when problems arise, the best solution is to contact your local college or adult education centre. Many of these now run courses in BASIC, some as evening courses and a few during the day, and the teachers there will make a far better job of explaining BASIC problems than a book ever can.

Heather Robinson, Wollaton, Nottingham

Better Bloboids

I would like to make a simple suggestion for improving the Bloboids game for the Oric-1 published in HCW 12.

As it stands, the game lacks strategy. My suggestion allows the Bloboids to capture your ship. Add the following line:

1002 IF SCRN (X,Y+1) AND SCRN (X,Y-1) = 64 THEN EXPLODE GOTO 7000

and change line 651 to IF Y < 1 THEN Y = 1

S.J. Skinner, Redditch, Worcs

How to help the novice

Further to my One Woman's View piece in HCW 13, I thought I'd offer a few suggestions on how the computer industry could help the computer novice.

Computer manufacturers: select a dozen mixed beginners from those who send in advance orders prior to the launch of your new baby Offer them a free computer if they take part in a test of the novice's ability to understand your planned manual

Organise evening sessions at your office, where the beginners will each be provided with a computer and proposed manual, under a supervisor to check that nobody confers. After each session, the participants must hand in a list of the points they have not understood

When all the sessions have been completed and fully attended, rewrite your manual on the basis of what you have learned from their answers, in good time for the commercial launch. And don't forget to give the guinea pigs a copy of the final manual.

Authors of explanatory books: do proof read your work carefully before printing. **Do** make sure, as this is a new computer, that you fully understand it. **Don't** allow your expert ego to convince you that you could not, possibly, make mistakes in typing in the (to you) childishly simple programs you compose to illustrate your text.

Do run each one yourself, to be sure. **Don't,** because you cannot lay your hands on the right computer, illustrate your test with reproductions of listings printed from other makes of computer.

And in your desire to be first on the market, chasing the fast buck, try not to lose sight of the fact that you are writing for beginners who are ill-equipped to detect your errors.

Magazines: when treading the tightrope between advertiser and reader, try to step down on the reader's side. We know you take great care to stop errors happening, but they do, so please print the corrections and don't just ignore them.

And above all, devote just a little of your space each issue to a beginner's page, where simple questions get simple answers.

Dorene Cox, Dagenham, Essex

★ *Software winner*

Why libraries aren't a bad idea

I've been interested in computer for some years now, and while computers have decreased in price, software has shot up to fantastic levels. I can accept that programs have to be priced at around £5 to cover their costs, but prices of £15 upwards for some programs are beyond most buyers' pockets.

An obvious alternative in these cases is software libraries, which rent cassettes out for £1.50 to £2 a time But some software companies have raised objections to the libraries and made it difficult for them to operate.

Without criticising the software houses, it seems to me that they are the only ones who can help the less well-off computer users. If the top software houses got together to form a library of their own, it could prove beneficial to everybody.

The library would be able to monitor suspected pirate operators directly on the companies' behalf. It would also be able to set up a rating system, so that all software passing through the library could be graded on several categories to give renters and buyers a better idea of what it was like.

Once started, these libraries could be very successful, and I suspect that we, the consumers, would give them our full support. How about it, software companies?

David Poole, Woore, Cheshire

Mystery of the missing FORTH

I was interested to read Mark Philips' View (HCW 12) in which he quite rightly criticised the advertisements used to sell microcomputer.

I think, however, that another kind of approach is also all to prevalent, especially among some of the newer products: that of promising an "extra feature" which never actually materialises. One example is the "free FORTH cassette" promised with every 48K Oric-1 ordered.

I ordered the 48K model at the time these ads came out (this was when the Oric was still on sale by mail order only). When, after eight weeks, the computer arrived (by which time I could have bought the same model in a shop, thus saving myself £5.95 post and packing), no FORTH cassette was with it.

What did come with it was what appeared to be a very long demonstration program on one side and a game on the other. I say "appeared" because I have not yet succeeded in loading the tape, even at 300 baud. I have written to Oric about this, but as yet have not had a reply

I had been looking forward to the speed of FORTH to enable me to write reasonably fast games without having to resort to machine code. Now I am obviously reluctant to buy the FORTH cassette from Oric. Are there any software companies out there who have produced (or who plan to produce) a FORTH compiler for the Oric-1?

David Hazel, Southsea, Hants

Pam Durkie, for Oric, said: "ALL FORTH tapes have been despatched to mail order customers. If anyone has not received theirs, we suggest they write to Oric at Coworth Park, London Road, Ascot, Berks SL5 7SE. The offer was only for people who ordered a 48K Oric by post."

Helping out the TI handbook

As a newcomer to home computing, I have found David Gray's programs for the TI-99/4A very helpful

The handbook supplied with my machine is fine in most areas, but the examples are not particularly good at indicating what additional uses the various commands can be put to. I would particularly appreciate an article on file handling.

E.J.M. Wilson, Herts

Micro owners of Belfast, unite

A friend and I would like to start up a club for home computer enthusiasts in Belfast. The trouble is, we don't know how to start getting in touch with like-minded microcomputer owners in the area.

I'd be very grateful if you could print this letter asking anyone who's interested in starting such a club to write to me at the address below

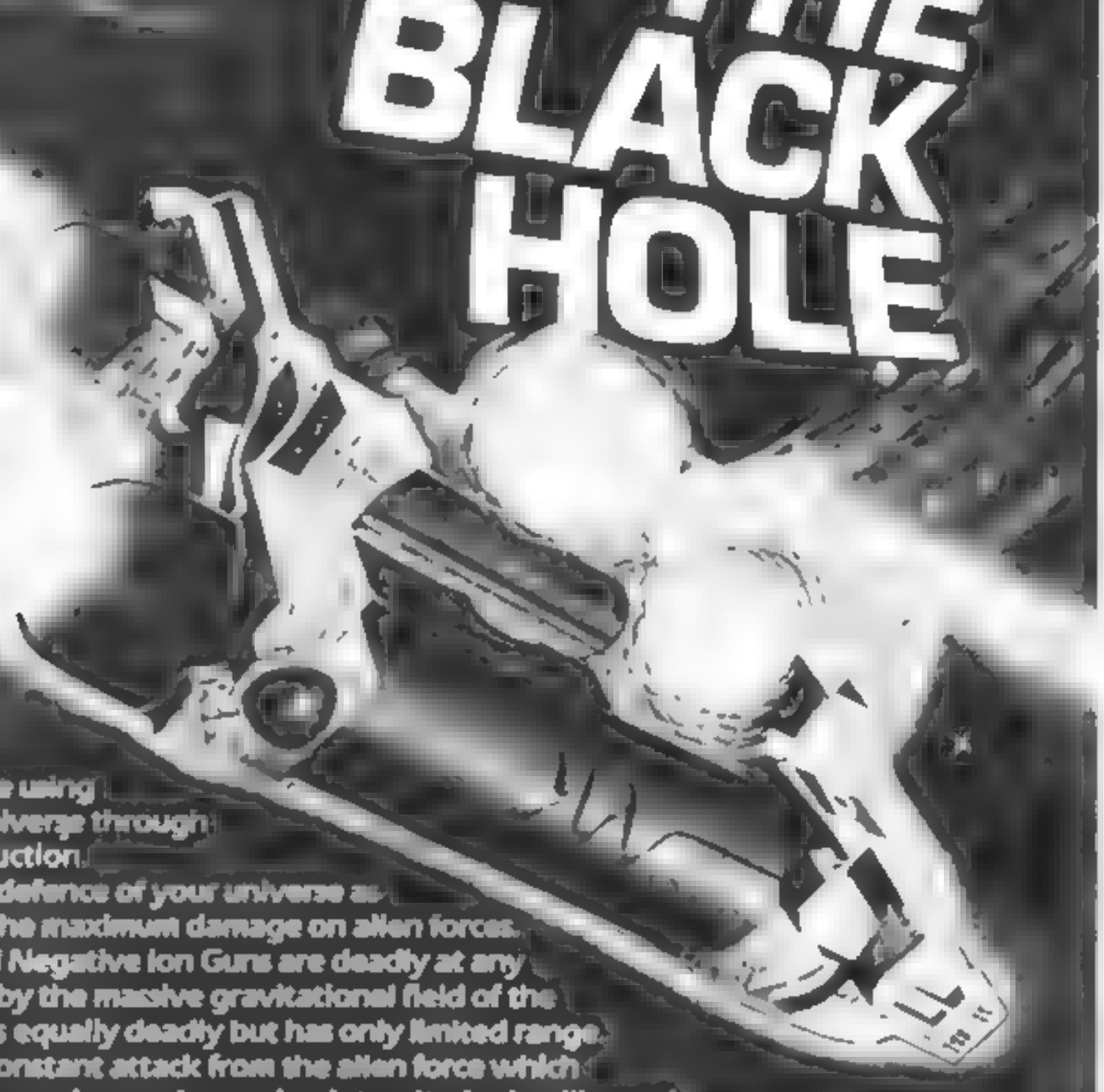
F J Hughes, 11 Willowfield Street, Belfast BT6 9AU

QUEST

FOR ANY SPECTRUM

SIMPLY THE BEST

THE BLACK HOLE



THE SCENE: Alien spacecraft are using hyperspace drive to enter our universe through a black hole. Their intent is destruction.

YOUR MISSION: To uphold the defence of your universe as long as possible while inflicting the maximum damage on alien forces.

YOUR WEAPONS: Positive and Negative Ion Guns are deadly at any range but the ion stream is bent by the massive gravitational field of the black hole. The Neutron Blaster is equally deadly but has only limited range.

YOUR BATTLE: You are under constant attack from the alien force which pits fiendish offence craft against you in ever increasing intensity, in deadlier and deadlier form.

How long can your fleet of ships survive? How many enemy craft can you destroy? 100% super efficient machine code allows all this action to be packed in to run on the 16K (or 48K) Spectrum. Superb animation, high resolution graphics, incredible explosive and full sound effects combine to make "Black Hole" set a new standard in Spectrum software. Also features a special learning mode to help develop your skills.

Embedded in the software is our unique score validifier which enables us to introduce a new dimension to computer games. The top ten scorers in each calendar month from April through September will receive a "I'm a Black Hole addict" T-shirt and the chance to compete for prizes to the value of £500 in a championship to be held at the end of the year. We will then publish a list of the top 1000 scorers so you can find out just how good you are.

HOW GOOD ARE YOU? Take up the "BLACK HOLE" challenge NOW and find out. Send £5.50 to QUEST, 119 THE PROMENADE, CHELTENHAM, GLOS GL50 1NW to receive your copy of "BLACK HOLE" by return first class post together with a membership number entitling you to discount on our forthcoming blockbusting software.

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TOP 3 SCORERS AT THE END OF MAY ARE:

1. RUSSELL CAPEL, Swindon Village, Glouc.	2530
2. K. BURNETT, Fraserburgh, Aberdeen.	2019
3. DAVID BAXTER, Carluke, Lanarks.	1594

HCW15

Picture it easily with your ZX81

Your work may never hang in the Tate Gallery, but you'll find picture making fascinating and fun with Nick Godwin's program for the ZX81 with 16K of RAM

Make drawings on your 16K ZX81 with the minimum of hassle using my Picture Maker program.

It performs the fundamental operations of an image processor and the drawings can be filed into — or recalled from — up to 10 strings at will. And up to 10 full-screen images can be stored

It is vitally important to type the first nine lines in exactly as listed — failure to do so will probably result in a crash when the program is RUN.

In line 490, Y$ is to contain the 20 graphics characters in the same order as they appear on the keyboard.

The inverse graphics statements in this program read as follows:

```
500 "TO WHICH FILE?"
640 "WARNING: FILE'..
  'IN USE"
700 "PRINT WHICH FILE?"
800 "FILE'... IS EMPTY"
820 "LETTER TO RUBOUT
  FILE OR S TO
  CLEAR THE SCREEN"
```

FAST mode is recommended for this program. RUN, to display * centre screen. Enter any key except BREAK to change this character.

Note: to obtain a space, enter NEW LINE, and to obtain £ enter shifted P.

To obtain an inverse or graphics character, first enter GRAPHICS followed by the appropriate character. Keywords are not available for display.

To change the position of the displayed character, use shifted keys 1 through 8 (1 through 4 are for diagonal directions).

To draw, enter FUNCTION then operate as described above. To stop drawing, enter FUNCTION again. To draw at one point only, while in "non-draw" mode, enter shifted H

To file an image enter shifted F, followed by the letter (A-J) of the string into which you wish to file it. If a warning flashes up, enter the same letter again to confirm or try another letter if you wish to keep whatever is already filed therein.

To display a previously filed image, enter shifted D followed by the letter (A-J) of the string containing the image required.

To clear the screen, enter RUBOUT followed by "S".

To clear a string (A-J) enter RUBOUT followed by the name of the string.

To clear the screen, enter RUBOUT followed by "S".

To clear a string (A-J) enter RUBOUT followed by the name of the string.

To SAVE the pictures enter shifted "S". This displays a string input cursor. Type the program name of your choice, but do not press NEWLINE Turn on the tape-recorder (set to RECORD), then press NEWLINE.

To STOP the program, enter shifted "A", not BREAK. To restart it, with images intact, GO TO 200.

It is possible to transfer an image from Picture Maker, to another program. I you wish to do this, before you LOAD Picture Maker, set RAMTOP by the following procedure:

```
POKE 16389,125
NEW
```

When you wish to transfer an image, first display the image required. Then STOP the program by pressing shifted "A". Add the following three-line routine:

```
9000 FOR J = 1 TO 704
9010 POKE 256*PEEK
16389+J,CODE Z$(J)
9020 NEXT J
```

Then GOTO 9000

When the process stops (report code: 0/9020, the image is now preserved above RAMTOP. The program can now be NEWed, or another program LOADed. The following four lines will call the image into Z$

```
9000 DIM Z$(704,
9010 FOR J = 1 TO 704
9020 LET Z$(J) = CHR$ PEEK
(256*PEEK 16389+J)
9030 NEXT J
```

Some of the drawings I have made using Picture Maker

```
  1 GOTO VAL "100"
  2 LET A$=""
  3 RETURN
  4 LET Q=LEN A$
  5 RETURN
  6 LET A$=Z$
  7 RETURN
  8 LET Z$=A$
  9 RETURN
 100 FOR I=CODE "A" TO CODE "J"
 110 POKE VAL "16526",I
 120 GOSUB VAL "2"
 130 NEXT I
 140 DIM Z$(VAL "704")
 150 LET A=VAL "366"
 160 LET X$="+"
 170 LET H=CODE ""
 200 PRINT AT CODE "",CODE "";Z$
;AT VAL "INT (A/32)",A-CODE "4"*
INT (A/CODE "4"),X$
 210 GOSUB VAL "9000"
 220 IF Z=CODE " STOP " THEN STO
P
 230 IF Z>CODE "Z" THEN GOTO VAL
 "300"
 240 LET X$=CHR$ Z
 250 IF H THEN LET Z$(VAL "A+1")
=X$
 260 LET H=VAL "H-H*(H=2)"
 290 GOTO VAL "200"
 300 REM CONTROL
 310 LET A=VAL "A+(A<703 AND Z=1
15)+32*(A<671 AND Z=113)+33*(A<6
70 AND Z=222)+31*(A<672 AND Z=22
3)-(A>0 AND Z=114)-32*(A>31 AND
Z=112)-33*(A>32 AND Z=117)-31*(A
>30 AND Z=218)"
 320 IF Z=VAL "121" THEN LET H=N
OT H
 330 IF Z=CODE "**" THEN LET H=V
AL "2*(NOT H)+(H=1)"
 340 IF Z=VAL "116" THEN GOTO VA
L "400"
 350 IF Z=CODE " LPRINT " THEN G
OTO VAL "520"
 360 IF Z=CODE " FAST " THEN GOT
O VAL "560"
 370 IF Z=CODE " SLOW " THEN GOT
O VAL "700"
 375 IF Z=VAL "119" THEN GOTO VA
L "820"
 380 IF H THEN GOTO VAL "250"
 390 GOTO VAL "200"
 400 GOSUB VAL "8000"
 410 IF Z>CODE "Z" THEN GOTO VAL
 "440"
 420 LET X$=CHR$ VAL "Z+128"
 430 GOTO VAL "250"
 440 LET Y$=CHR$ VAL "117"+" AND
 THEN TO "+CHR$ VAL "114"+CHR$ V
AL "113"+CHR$ VAL "112"+CHR$ VAL
 "115"+""" OR STEP (=<>)= STOP L
PRINT SLOW FAST LLIST *+"
 450 FOR I=VAL "1" TO LEN Y$
 460 IF Z=CODE Y$(I) THEN GOTO V
AL "490"
```

```
 470 NEXT I
 480 GOTO VAL "200"
 490 LET Y$="
"
 500 LET X$=Y$(I)
 510 GOTO VAL "250"
 520 LET Y$=""
 530 INPUT Y$
 540 IF Y$;"" THEN SAVE Y$
 550 GOTO VAL "200"
 560 PRINT AT CODE "+",CODE "";"
                "
 570 GOSUB VAL "8000"
 590 IF Z<CODE "A" OR Z>CODE "J"
THEN GOTO VAL "200"
 600 POKE VAL "16546",Z
 610 POKE VAL "16560",Z
 620 GOSUB VAL "4"
```

```
 630 IF NOT Q THEN GOTO VAL "600
"
 640 PRINT AT CODE "+",CODE "";"
                ",CHR$ VAL "Z+128"
;"                "
 650 LET Q=Z
 660 GOSUB VAL "8000"
 670 IF Z<>0 THEN GOTO VAL "560"
 680 GOSUB VAL "5"
 690 GOTO VAL "200"
 700 PRINT AT CODE "+",CODE "";"
                "
 710 GOSUB VAL "8000"
 730 IF Z<CODE "A" OR Z>CODE "J"
THEN GOTO VAL "200"
 740 POKE VAL "16546",Z
 750 POKE VAL "16560",Z
 760 GOSUB VAL "4"
 770 IF NOT Q THEN GOTO VAL "600
"
 780 GOSUB VAL "0"
 790 GOTO VAL "200"
 800 PRINT AT CODE "+",CODE "";"
                ";CHR$ VAL "Z+128";"
                "
 810 GOTO VAL "210"
 820 PRINT AT CODE "=",CODE "";"
                ";"
                "
 830 GOSUB VAL "8000"
 840 IF Z<CODE "A" OR Z>CODE "J"
THEN GOTO VAL "800"
 850 POKE VAL "16526",Z
 860 GOSUB VAL "2"
 870 GOTO VAL "200"
 880 IF Z=CODE "S" THEN DIM Z$(V
AL "704")
 890 GOTO VAL "200"
7999 STOP
8000 PAUSE VAL "4E4"
8001 POKE VAL "16437",CODE " COP
Y"
8010 LET Z=CODE INKEY$
8020 LET Z=VAL "Z-118*(Z=118)+(Z
=11)-181*(Z=192)"
8030 RETURN
```

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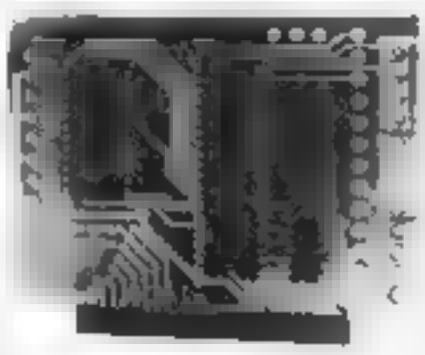

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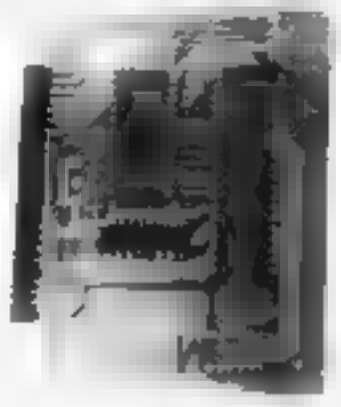

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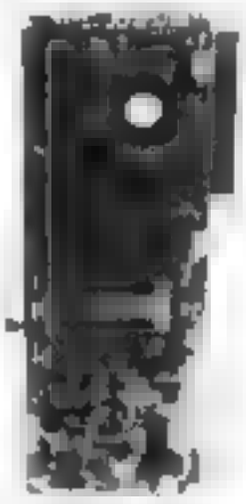

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The user-friendly approach is consistent throughout the text – not only are program listings clearly shown, but in many cases, a photograph is included to show what the program looks like when actually loaded and run!

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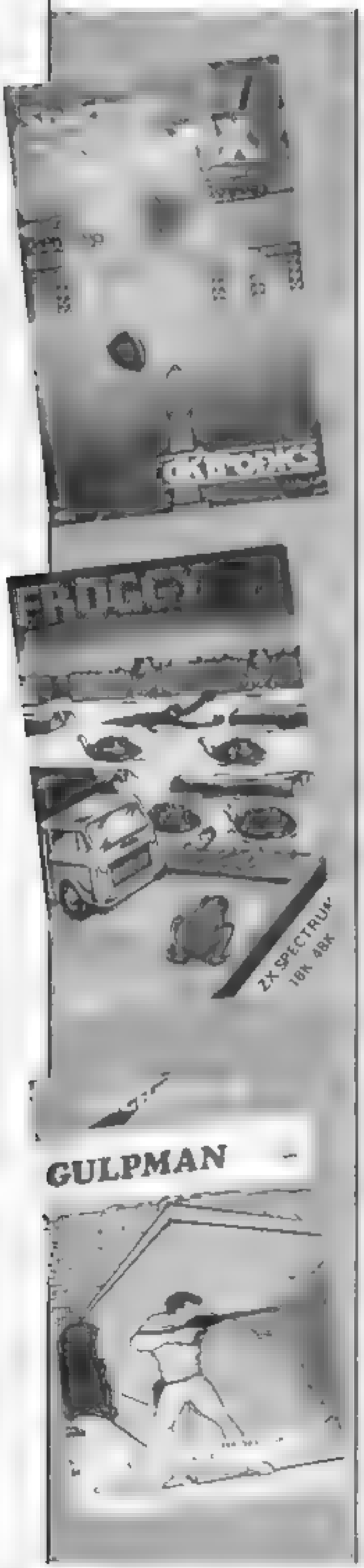

Action's the name of the game in these new Spectrum releases, rated for you by our team of reviewers

3D Tanx
£5.45

dk'tronics, Unit 2, Shire Hill Industrial Estate, Saffron Walden, Essex

Quite an original game, this. You are cast as defender of a bridge,' across which the computer is attempting to march a line of tanks.

From the screen display the bridge looks a long distance away, but is very wide. The tanks trundle onto the screen stage right for every one that manages to exit stage left, you lose points.

To prevent them you have control of a curiously shaped anti-tank gun (what else?), seen in perspective, which is capable of both lateral movement and variable angle of muzzle. The field of fire can thus cover the entire bridge — just.

The controls are sensibly laid out and the display more than adequate, if not absolutely brilliant. The game is definitely addictive and difficult enough to ensure that you will return to it again and again. Just one more try

R.H.

instructions	80%
playability	90%
graphics	50%
value for money	70%

Froggy
£5.95

DJL Software, Dept Yc, 9 Tweed Close, Swindon, Wilts SN2 3PU

Variations of this game abound, but this is one of the best I have seen! Everything from instructions to the game itself, which uses every available byte in the 16K Spectrum, is highly professional.

The aim of the game is to hop your frog across a three lane road avoiding various vehicles, then across a river by hopping on logs and turtles, to your home bases. Crocodiles and snakes are out to eat you, and you have a limited time in which to get home

An unusual extra is a baby frog which needs rescuing from a log for bonus points. There are four skill levels and seven speeds, all of which increase automatically for each sheet of five successful crossings.

Colour, sound and graphics are used superbly producing a stunning display and an extremely addictive game. A high score chart is kept and the "just one more go" syndrome is rampant! Unreservedly recommended to frog lovers everywhere.

R.E.

instructions	100%
playability	100%
graphics	100%
value for money	99%

Sword Fight at Midnight
£4.95

Firefly Software, Sunnybank, Heath Ride, Wokingham, Berks

Against a well-drawn night sky and landscape, two sword fighters do battle for honour — or whatever else you please, really.

The graphics are superbly executed and the title well chosen! My biggest problem with the game was that I received no instructions with the tape and had to work it out for myself. Packaging is a bit rough, too.

Swordfight is a two-player game, and this is probably its biggest drawback. The thought of two people crouched over a Spectrum keyboard pounding away in the heat of battle, is enough to cause a shudder or two. One outcome might easily be real fisticuffs as both scramble to reach the keys. .

All the movements are in there — thrust, parry, sweep, retreat, advance en garde etc. Good stuff and very pretty. It really needs to be a two-joystick affair, though, or maybe have the computer fight one side

Good game, shame about the mechanics.

R.H.

instructions	0%
playability	20%
graphics	80%
value for money	60%

Gulpman
£4.95

Micromega, 230-236 Lavender Hill, London SW11 1LE

"Not another Pac-Man derivative?" I hear you cry. Well yes, but let's be fair — this game was one of the first to munch its way on to the Spectrum, and it has survived remarkably well.

The object of this version is to scrump apples from a maze inhabited by four grumpy guards who only smile then they catch you. These chasers are truly intelligent and a strong point of the program.

Each apple munched is rewarded with a delightful sound effect and ten points. For each 1000 scored you win nothing but the carniverous caretakers move a little faster.

To fend them off you have twenty lasers for use in panic situations. If you get bored with one maze you can choose one of 14 others complete with no less than 81 skill levels thrown in!

Graphically the game is limited — it would have been pleasant to see some sort of running motion from the player's puppet man and a little more emotion from the guards. But these are my only criticisms of an otherwise excellent game.

T.B.

instructions	95%
playability	80%
graphics	55%
value for money	100%

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On your marks for a radio-active game

Try to neutralise the isotopes before they neutralise you, in David Ryan's game for the Atari 400 and 800

Variables

FNZ the code of the first number to be crossed
LN the code of the last number to be crossed
SC score
HI high score
PRAD the radio-active poisoning count
NX,NY isotope positions
MX,MY your positions
JNS new joystick value
JS old joystick value
MNX,MNY your new position
Z dummy variable that holds the contents of the new position
PX,PY pill position
L level count
XFB$ string to hold a machine code program the moves the character set into RAM

It's no picnic being a decontamination man. You're supposed to neutralise ten isotopes, but your protective clothing isn't enough to keep off radioactivity for long. If the job isn't finished pretty quickly, radioactive poisoning will finish you off

And this mission is by no means straightforward. Firstly, you have to neutralise the isotopes in the right order — from 0 to 9. As you move about the decontamination enclosure, make sure you don't cross your own radioactive trail. And watch out for those pools — you might fall in and drown

To add to the confusion, if you hit a wall you bounce off in an unpredictable direction

While the game is in progress three readouts are displayed on the screen. SCORE and HIGH are self explanatory. The POISON readout is your radioactive poisoning count — if it passes ten you're dead

The count goes up by one each time you cross your trail, goes down by two if he succeeds in neutralising all the isotopes and reset to zero if he takes an 'anti-radioacuvity pill' which appear from time to time.

Scoring depends on the skill level chosen (A to Z, with Z being hardest and fastest), with highest points being awarded at the highest level.

The program uses a loop to increase speed as the skill level increases. It needs a joystick plugged into Port 0 (far left at the front of the computer).

To start the game, once the screen has been constructed hit the fire button or any key. A pause facility has been written into the program so that once in play the game may be stopped by pushing the space bar.

My best score is 1465 points, can you beat it?

Note: lines 32000-32090 are used to create a machine code routine to move the ROM character set into RAM. It **must** be entered exactly as coded in the listing!

How it works

1-70 print[illegible] the "NEUTRALIZE" introduction onto the screen. The word "NEUTRALIZE" is obtained from the data statements in lines 32250 to 32300. If these lines become too difficult for you to type in they may be ignored along with lines 1-70, except for line 2.

100-900 these set up the screen and variables depending on the skill level chosen

1000-2045 these are used to detect collisions on the screen and to move you about

2000-2060 prints the "pill" on the screen

3000-3200 hit a wall subroutine

3500-3520 hit a patch of water

4000-4020 collision with [illegible] square

4500-4550 [illegible]

5000-5020 the pill subroutine

6000-6070 end of game routine

6500-6655 go on to a new level subroutine

9000-9020 pause subroutine

20000-25000 [illegible] skill level

32000-32380 redefine the character set and hold all the incidental data used at the beginning of the RUN#A machine code routine is used here and must be entered exactly as it is printed.

Note: Lines 1, 6000, 6510, 20000, 20030 contain a clear screen character (ESCAPE, CTRL-CLEAR is the sequence of keys used to achieve this character — see the Basic Reference Manual)

Hints on conversion

Some special commands which are used in this program are listed below. Many computers have the equivalent commands available

ADR returns the address of the specified string in the program

GRAPHICS changes the graphics mode (the screen size) The size of the screen in GRAPHICS 17 is 24 down by 20 across.

LOCATE positions the cursor at the specified position and reads the contents under it

POSITION puts the cursor at the specified place on the screen. This is used in association with 'PRINT #6' for printing onto the screen in any graphics mode except GRAPHICS 0

STICK (Q) is a command to read the joystick port specified. To make this game more difficult the man does not stop on the screen during play, unless the pause routine is in operation

```
0 REM Neutralize  By David Ryan - March 1983
1 REM ALL PRINTING IN ITALICS ARE INVERSE
      CHARACTERS.
2 ? CHR$(125)
3 OPEN #1,4,0,"K:"
4 REST[illegible]
10 POKE 82,0:RESTORE 32240
20 DIM A$(40):SETCOLOR 2,12,0:SETCOLOR 4,12,0:POKE
 752,1
30 POSITION 0,23:FOR A=1 TO 5:FOR B=1 TO 39:READ C
:A$(B,B)=CHR$(C):NEXT B:? A$:NEXT A:? :? :? :? :?
:? :? :? :?
40 POSITION 12,20:? "Press 'Fire'"
50 FOR A=15 TO 0 STEP -1:SETCOLOR 1,0,A:SOUND 0,15
-A,10,A:SOUND 1,A,10,A
60 FOR E=1 TO 30:IF STRIG(0)=0 THEN SOUND 0,0,0,0
SOUND 1,0,0,0:GOTO 100
70 NEXT E:NEXT A:GOTO 50
100 GRAPHICS 17:GOSUB 32000
110 GOSUB 20000:REM INPUT SKILL LEVEL
200 FNZ=144:LN=153:SC=0:HI=SC:PRAD=0
210 POSITION 0,0:? #6;CHR$(125):SETCOLOR 4,12,8:SE
TCOLOR 0,3,4:SETCOLOR 3,1,15:SETCOLOR 2,6,4:SETCOL
OR 1,14,4
300 COLOR 81:PLOT 0,0:DRAWTO 19,0:DRAWTO 19,20:DRA
WTO 0,20:DRAWTO 0,0
```

```
310 FOR A=16 TO 25
320 COLOR A+128:NX=INT(RND(0)*20):NY=INT(RND(0)*21
):LOCATE NX,NY,Z:IF Z<>32 THEN 320
330 PLOT NX,NY:NEXT A:MAX=L
335 IF L>10 THEN MAX=10
340 COLOR 216:FOR A=0 TO MAX
350 NX=INT(RND(0)*20):NY=INT(RND(0)*21):LOCATE NX,
NY,Z:IF Z<>32 THEN 350
360 PLOT NX,NY:NEXT A:MAX=L
365 IF L>15 THEN MAX=15
370 COLOR 81:FOR A=0 TO MAX
380 NX=INT(RND(0)*20):NY=INT(RND(0)*21):LOCATE NX,
NY,Z:IF Z<>32 THEN 380
385 PLOT NX,NY:NEXT A:MAX=L
390 NX=INT(RND(0)*20):NY=INT(RND(0)*21):LOCATE NX,
NY,Z:IF Z<>32 THEN 370
400 JS=14:COLOR 221:PLOT NX,NY
900 GOTO 9000
1000 JNS=STICK(0):IF JNS<>14 AND JNS<>13 AND JNS<>
11 AND JNS<>7 THEN 1020
1010 JS=JNS
```

```
1020 MNY=MY+(JS=13)-(JS=14):MNX=MX+(JS=7)-(JS=11)
1030 LOCATE MNX,MNY,Z
1040 IF Z=81 THEN 3000:REM WALL
1050 IF Z=216 THEN 3500:REM WATER
1060 IF Z=1 THEN 4000:REM SLIME
1070 IF Z>143 THEN 4500:REM NUMBER
1075 IF Z=130 THEN 5000:REM PILL
1080 IF MNX>MX THEN COLOR 220:GOTO 2000
1085 IF MNX<MX THEN COLOR 219:GOTO 2000
1090 IF MNY>MY THEN COLOR 222:GOTO 2000
1095 COLOR 221
2000 PLOT MNX,MNY:COLOR 1:PLOT MX,MY:MX=MNX:MY=MNY
:SOUND 1,0,1,8:FOR E=1 TO 40-L:NEXT E:SOUND 1,0,0,
0
2010 POSITION 3,21:? #6;"score      ";SC;" ":POSITI
ON 3,22:? #6;"POISONING ";PRAD;" "
2020 POSITION 3,23:? #6;"high       ";HI;" "
2030 IF PEEK(764)=33 THEN POKE 764,255:GOTO 9000
2040 POKE 77,0:IF INT(RND(0)*100)+1=PRAD THEN 2050
2045 GOTO 1000
2050 PX=INT(RND(0)*20):PY=INT(RND(0)*21):LOCATE PX
,PY,Z:IF Z<>32 THEN 2050
2060 COLOR 130:PLOT PX,PY:GOTO 1000
3000 RESTORE 3200
3010 R=INT(RND(0)*4)+1:FOR A=1 TO R:READ JS:NEXT A
:GOTO 1000
3200 DATA 14,11,13,7
3500 FOR A=1 TO 200 STEP 2:SOUND 0,A,10,8:FOR E=1
TO 10:NEXT E:SOUND 0,0,0,0:FOR E=1 TO 10:NEXT E
3510 POSITION 0,22:? #6;"the man has drowned  in a
 pool of water":NEXT A
3520 SOUND 0,0,0,0:GOTO 6000:REM END
4000 PRAD=PRAD+1:IF PRAD<11 THEN SOUND 1,6,6,6:COL
OR 0:PLOT MNX,MNY:SC=SC-L:SOUND 1,0,0,0:GOTO 1000
4010 FOR A=1 TO 75:SOUND 0,A,12,8:POSITION 0,21:?
#6;"  RADIOACTIVE SLIME  HAS KILLED THE MAN "
4020 SOUND 0,A*100,6,8:NEXT A:SOUND 0,0,0,0:GOTO 6
000:REM END
4500 IF Z=FNZ THEN 4530
4510 FOR A=FNZ TO LN:FOR E=0 TO 15:SOUND 0,A*E,10,
E:SOUND 1,A,8,E:SETCOLOR 3,A,E
4520 POSITION 0,21:? #6;"you have neutralized the
 isotopes in the     wrong order":NEXT E:NEXT A
4525 SOUND 0,0,0,0:SOUND 1,0,0,0:GOTO 6000:REM END
4530 IF FNZ=LN THEN 6500:REM NEW SCREEN
4540 FOR A=20 TO 0 STEP -0.5:SOUND 0,A,10,8:NEXT A
:SOUND 0,0,0,0
4550 COLOR 0:PLOT MNX,MNY:SC=SC+L*2:FNZ=FNZ+1:GOTO
 1000
5000 REM RADIATION PILL
5010 PRAD=0:SC=SC-2*L:COLOR 0:PLOT MNX,MNY
```

```
6000 POSITION 0,0:? #6;CHR$(125):POSITION 0,4:? #6
;"     the  end"
6010 POSITION 0,10:? #6;"you scored ";SC;" pts"
6020 IF SC>HI THEN HI=SC
6030 POSITION 0,12:? #6;"HIGH SCORE ";HI;" PTS"
6040 POSITION 0,18:? #6;" PRESS  FIRE  FOR       AN
OTHER GO "
6050 IF STRIG(0)<>0 THEN 6050
6060 GOSUB 20000
6070 FNZ=144:LN=153:SC=0:PRAD=0:GOTO 210
6500 REM NEW SCREEN
6510 POSITION 0,0:? #6;CHR$(125)
6515 FOR R=1 TO 25:POSITION 5,5:? #6;"NEW  LEVEL";
FOR A=1 TO 15:SETCOLOR 0,A,7:SOUND 0,A*3,10,8
6520 POSITION 5,9:? #6;"LEVEL    ";L:NEXT A:SETCOLO
R 4,R,8:POSITION 5,9:? #6;"              ":NEXT R
6530 SOUND 0,0,0,0:L=L+1:IF L>29 THEN L=29
```

```
6540 FNZ=144:LN=153:SC=SC+100:PRAD=PRAD-2:IF PRAD<
0 THEN PRAD=0
6555 GOTO 210
9000 IF PEEK(764)<>255 THEN POKE 764,255:GOTO 1000
9010 IF STRIG(0)=0 THEN POKE 764,255:GOTO 1000
9020 GOTO 9000
10000 GOTO 10000
20000 POSITION 0,0:? #6;CHR$(125):POSITION 4,1:? #
6;"NEUTRALIZE"
20010 POSITION 1,7:? #6;"input skill level":POSITI
ON 0,11:? #6;"    A -easiest              Z -hardest "
20020 GET #1,X:IF X<65 OR X>90 THEN 20020
20030 L=X-64:POSITION 0,0:? #6;")":MAX=L:RETURN
25000 GOTO 25000
32000 POKE 106,PEEK(106)-5:GRAPHICS 17:ST=(PEEK(10
6)+1)*256:POKE 756,ST/256
32010 DIM XFR$(38),X$(1):RESTORE 32050:FOR A=1 TO
38:READ C:XFR$(A,A)=CHR$(C):NEXT A
32020 Z=USR(ADR(XFR$)):RESTORE 32100
32030 READ X:IF X=-1 THEN RETURN
32040 FOR Y=0 TO 7:READ Z:POKE Y+X+ST,Z:NEXT Y:GOT
O 32030
32050 DATA 104,169,0,133,203,133,205,169,224,133,2
06,165,106,24,105,1,133,204,160,0,177,205,145,203,
200,208,249
32060 DATA 230,204,230,206,165,206,201,228,208,237
,96
32100 REM RADIO-ACTIVE TRAIL
32110 DATA 8,0,84,42,84,42,84,42,0
32120 REM WALLS
32130 DATA 392,251,0,223,223,223,0,251,251
32140 REM WATER
32150 DATA 448,255,255,255,255,255,255,255,255
32160 REM MAN LEFT
32170 DATA 472,24,24,72,60,10,56,36,18
32180 REM MAN RIGHT
32190 DATA 480,24,24,18,60,80,28,36,72
32200 REM MAN UP
32210 DATA 488,24,24,60,90,24,24,36,36
32220 REM MAN DOWN
32230 DATA 496,24,36,60,90,24,24,36,36
32232 REM RADIATION PILL
32235 DATA 16,0,0,0,0,16,0,0,0,-1
32240 REM INTRODUCTION BANNER
32245 REM
32250 DATA 160,32,160,32,160,160,160,32,160,32,160
,32,160,160,160,32,160,160,10,32
32255 DATA 8,160,10,32,160,32,32,32,160,160,160,32
,160,160,160,32,160,160,160
32260 DATA 160,10,160,32,160,32,32,32,160,32,160,3
2,32,160,32,32,160,32,160,32
32265 DATA 160,32,160,32,160,32,32,32,32,160,32,32
,32,8,136,32,160,32,32
32270 DATA 160,138,160,32,160,160,32,32,160,32,160
,32,32,160,32,32,160,160,136,32
32275 DATA 160,160,160,32,160,32,32,32,32,160,32,3
2,8,136,32,32,160,160,32
32280 DATA 160,32,160,32,160,32,32,32,160,32,160,3
2,32,160,32,32,160,10,32,32
32285 DATA 160,32,160,32,160,32,32,32,32,160,32,32
,160,32,32,32,160,32,32
32290 DATA 160,32,160,32,160,160,160,32,160,160,16
0,32,32,160,32,32,160,138,10,32
32295 DATA 160,32,160,32,160,160,160,32,160,160,16
0,32,160,160,160,32,160,160,160
```

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Put your foot down, and try to stay on the road

You'll need quick reactions to remain on these roads. Sam Manthorpe has used machine code for extra speed in his VIC Rally game

How's your driving? Test it with my VIC Rally game, which will just about fit into an unexpanded VIC-20 if all the REMarks are omitted.

You have to steer your car — pressing A for left and B for right — avoiding the sides of the road as it scrolls down the screen.

Your speed slowly increases and if you complete the first course you are given another with a narrower road, again with increasing speed.

I hope you enjoy the game. To give you a target, my highest score so far is 11,000.

Control Characters

The control characters used in the program have the following functions: Line 30: home cursor; cursor down; cursor left; move line right. Line 40: home cursor; cursor down, set red. Line 1000: clear screen; set blue. Line 1040: clear screen; cursor down x 8; cursor right x 5. Line 1050: set red. Line 1060: cursor right x 5; set white. Line 1070: cursor down x 5; cursor right; set blue. Line 1090: set black; clear screen; set reversed text; set blue; set red. Line 1110: cursor home. Line 1200: home cursor; set red; cursor down x 7; cursor right x 4; then after 12 spaces, cursor right x 9; set reversed text; cursor right x 9. Line 1220: set reversed text; home cursor; cursor down x 6; set white. Line 1250: set reversed text; clear screen; cursor down x 6. Line 1370: clear screen. Line 1370: set red, cursor down x 2. Line 1410: cursor down x 2. Line 1430: cursor up, cursor right x 5. Line 14350: set blue. Line 1610: cursor left. Line 7010: clear screen; home cursor. Line 7030: set red. Line 7040: set white. LIne 7050: set blue. Line 7110: cursor down.

Variables

NS name of high score holder
AS dummy string used to clear keyboard buffer
D direction of road movement (-1 is left, 1 is right)
X horizontal position of road
S speed, used in delay loop in line 190
W frequency at which car engine is running, POKEd into 36875
Y X is stored here so it can be reset to its previous value if it goes too far to left or right
SC current player's score
DI dummy used mainly in delay loops
QW flag to say if opening tune should be played with title screen
HI high score
Q dummy used when READing in data
QQ as above
L dummy used in FOR ... NEXT loops
SA current stage number, incremented each time a stage is completed

How it works

To speed things up, most initialisation is after the main program. The operating system searches line for line for GOTOs and GOSUBS, so the fewer lines it has to hunt through the less time it takes.

6, protects data for user-defined characters by lowering the top of memory making the computer think it has less — and alters the pointer to the start of the strings, which are stored from top of memory downwards.

30 moves the screen down, positioning cursor via the PRINT statement, and inserts a space. As the computer believes the next line is not a continuation of the first — done by POKE 218, 158 — it scrolls the screen down to make room for the space. The top line, containing high score and your score, isn't moved.

60 calls machine code routine to move car. It puts the character that has been replaced by the car into location 1 so by PEEKing at 1 the BASIC program can see if the car has hit the curb.

130 checks to see if course has been completed.

140 checks road does not go off screen.

190 delay loop — remove for maximum speed to start with.

200 handles sound.

205-206 update score.

1000-on are mostly initialisation. New characters replace the old set by POKE 36869,225 which tells the computer to get the character data from locations 7168-on.

1110 horizontal starting position of the car is set at the beginning of each stage by POKE 680,9. You can change the 9 to put the car where you like, but if it's too large or too small you are liable to start off outside the road, or, worse, under the curb. The @ sign tells the computer to display a solid block, because it is now using the characters defined by the program. It's the same with the car — it thinks an A looks like a car.

1160-1210 is the crash routine which jumps to 1350-1670.

1032 puts machine code routine to move car into free memory at 680 to 718.

1350-1670 input your name if you achieved high score.

3000-4080 data for tune (4010-4050, if you want a change), define characters, load machine code sub-routine.

5000-5060 play tune.

7000-7180 PRINT instructions — omit if you are pressed for memory, but remember to change the GOTO 7010 in line 10 to GOTO 1000.

8000-8090 load data for new characters into the top of memory.

VIC-20 PROGRAM

```
1000 POKE 36869,240:PRINT"[CLR]":CHR$ 5
1010 X=7680:Y=0:S=0
1020 GOSUB
1030 POKE 60,0:POKE56,31:POKE36869,255
1031 RESTORE
1040 PRINT"[CLR]":FOR I=0 TO 16:READ P:POKE 8160+I,P:NEXT
1050 PRINT"[HOME]":FOR L=1 TO 5
1060 PRINT"[RVS]                    "
1070 POKE 36878,15:PRINT"[CLR]":INPUT"[RVS]   [OFF]";A$
1080 POKE 36878,0:IF A$="1" THEN 1100
1090 PRINT"[HOME]":FOR I=1 TO 10:PRINT:NEXT:GOTO 1060
1100 FOR I=0 TO 21:POKE 36876,I:POKE 36874,128
1110 FOR D=1 TO 40:NEXT:NEXT
1120 POKE 36878,0
1130 PRINT"[HOME]":FOR I=1 TO 10:PRINT:NEXT
1140 FOR I=0 TO 21:POKE 36876,I:POKE 36874,190
1150 FOR D=1 TO 40:NEXT:NEXT
1160 POKE 36878,15:FOR L=1 TO 5:PRINT"[HOME]":FOR I=1 TO 10:PRINT:NEXT:NEXT
1170 PRINT"[HOME]":FOR I=1 TO 10:PRINT:NEXT
1180 PRINT"[HOME]                    [RVS]YOU CRASHED[OFF]
"
1190 FOR L=1 TO 500:NEXT:GOTO 1200
1200 PRINT"[HOME]                    YOU COMPLETED                    THE COURSE
                    [RVS]AT[OFF]                    [RVS]MPH[OFF]
1210 PRINT"[HOME]"
1220 PRINT"[HOME]                    TIME    MPH
1230 GOSUB 1300
1240 REM MAIN ROUTINE
1250 PRINT"[HOME]":POKE36879,40
1260 IF A$="1" THEN 1000
1270 PRINT"[HOME]"
1280 PRINT"[HOME]                    TIME    MPH
1290 GOSUB 1300
1300 REM SUBROUTINE
1310 PRINT"[HOME]"
1320 PRINT"[HOME]"
1330 PRINT"[HOME]"
1340 PRINT"[HOME]"
1350 PRINT"[HOME]"
1360 PRINT"[HOME]"
1370 PRINT"[HOME]"
1380 PRINT"[HOME]"
1390 PRINT"[HOME]"
1400 PRINT"[HOME]"
1410 PRINT"[HOME]"
1420 PRINT"[HOME]"
1430 PRINT"[HOME]"
1440 PRINT"[HOME]"
1450 PRINT"[HOME]"
1460 J=PEEK(37)*256+PEEK(36)
1470 IF J=7954 THEN CH=CH+1
1480 IF J=8050 THEN CH=CH+1
1490 IF CH=5 THEN CH=0
1500 IF A$="1" THEN 1630
1510 PRINT"[HOME]";CHR$(CH+1)
1520 FOR DL=1 TO 40:NEXT
1530 GOTO 1460
1540 PRINT"[HOME]";CHR$(CH+1);:NEXT
1550 PRINT PRINT
1560 HI=SC
1570 FOR DL=1 TO 500:NEXT
1580 GOTO 1000
3000 REM ***MUSIC DATA***
3010 DATA174,168,169,32,157,242,30,165,197
3020 DATA201,17,208,1,202,201,16,208,1,232,189
3030 DATA220,30,133,169,1,157,220,30,142,168,2,96,0
4000 REM ***TUNE DATA***
4010 DATA217,200,213,200,221,200
4020 DATA221,100,234,100,230,200
4030 DATA221,100,234,100,230,200
4040 DATA221,200,221,200,217,200
4050 DATA213,200,-1
4060 REM ***CHAR DATA***
4070 DATA 999
4080 DATA 0,36,126,24,60,189,255,129
5000 REM ***PLAY TUNE***
5002 RESTORE
5004 FORL=0TO34:READQ:NEXT
5010 READQ:QQ
5012 IFQQ=-1THEN RETURN
5020 POKE36876,Q
5030 FORDL=1TO200-50*QQ:NEXT
5040 POKE36876,0
5050 FORDL=1TO50:NEXT
5060 GOTO 5010
7000 REM ***INSTRUCTIONS***
7010 PRINT"[CLR]":POKE36879,233
7020 POKE36869,242
7030 PRINT"[HOME]                    [RVS]RALLY[OFF]"
7040 PRINT"[HOME]                    ------"
7050 PRINT"[HOME]"
7060 PRINT"THE OBJECT OF THE GAME"
7070 PRINT"   IS TO SUCCESSFULLY"
7080 PRINT"STEER YOUR CAR AROUND"
7090 PRINT"THE COURSE YOUR CAR"
7100 PRINT"WILL GET FASTER AS YOU"
7110 PRINT"    PROGRESS[HOME]"
7120 PRINT"  [DOWN]OUR SCORE INREASES"
7130 PRINT"    PROGRESSIVELY"
7140 PRINT"WHEN YOU COMPLETE THE   COURSE,YOU WILL BE"
7150 PRINT" GIVEN ANOTHER WITH"
7160 PRINT"THE OBJECT OF THE GAME"
7170 PRINT"   IS TO SUCCESSFULLY"
7180 PRINT"STEER YOUR CAR AROUND"
7190 PRINT"THE COURSE YOUR CAR"
7200 PRINT"WILL GET FASTER AS YOU"
7210 PRINT"    PROGRESS[HOME]"
7220 PRINT"  [DOWN]OUR SCORE INREASES"
7230 PRINT"    PROGRESSIVELY"
7240 PRINT"WHEN YOU COMPLETE THE   COURSE,YOU WILL BE"
7250 PRINT" GIVEN ANOTHER WITH"
7260 PRINT"[DOWN]PRESS ANY KEY
7270 GOSUB 80
7280 POKE36879,27:GOTO 1000
READY.
```

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Starship Pegasus £11.00

By Not Polyoptics from Stainless Software, 10 Alstone Road, Stockport, Cheshire, SK4 5AH

I doubt if you will come across a more diverse and outrageous collection of life forms as those you will encounter in command of the Starship Pegasus. Your mission is to make treaties with these creatures in order to exploit their planets for as many energy, technology and mineral points as you can obtain

If they prove unfriendly and are lesser beings you may take a chance and open fire on their planet, exploiting it after their destruction. Underestimate their intelligence, however, and you may find yourself under attack!

For the seasoned campaigner there are over 100 quadrants to explore, one quadrant being chosen for each game. All have their own star systems which in turn have their own planets. Some of these will be uninhabited and make easy pickings.

Your journey is not necessarily a smooth one as space marauders are always waiting to launch an attack. These make frustratingly evasive opponents in an exchange of fire.

Graphics are not a main feature of this program, but where used are effective.

If you survive your mission you may be awarded a medal — but not always, as my husband found out when he beamed down to a planet, was granted immortality but then tortured for eons!

J W.

instructions	80%
playability	70%
graphics	30%
value for money	60%

★★★

Bluegrass Sweepstakes £7

By Pewterware from Stainless Software, 10 Alstone Road, Stockport, Cheshire SK4 5AH

Whether you enjoy the occassional flutter on the gee-gees or not, you will like this horseracing game for up to eight players

Eight horses are displayed on screen together with their names and starting prices. Bets are placed and the race begins The eight horses move across the screen from left to right and winnings are paid out on the first, second and third horses across the line.

Each punter enters his or her name and the computer will then display the name and the amount that person has available to bet with prior to each race. You are given 1000 dollars to begin with. The winner of each race receives a sweepstake ticket in addition to any winnings and this is used in the ninth race in which the runners are the winners of the previous eight races.

The graphics and colour capabilities of the TI99/4A are used to excellent effect in this very well-thought-out program.

It is not a game where you continually involved in the action, but it is nevertheless a very entertaining programme for children and adults alike.

D.B.

instructions	70%
playability	70%
graphics	100%
value for money	80%

★★★★★

Astro Fighter £5.50

Christine Computing, 6 Florence Close, Watford, Herts.

The aim of the game is to shoot down X-wing fighters by aligning them in your sights, using either keyboard or joysticks. Sufficient X-wings must be shot down to prevent your own craft running out of fuel

It's confusing to play at first, since the controls actually move the enemy fighter, not your craft. The stars stay fixed

In-program instructions were adequate, and the game seemed robust and well tested.

Inevitably, though, a game written in TI Basic is going to be very slow and rather boring to play.

D.G.

instructions	80%
playability	50%
graphics	50%
value for money	40%

★★

Pen the Pig £4

Stainless Software, 10 Alstone Road, Stockport, Cheshire Sk4 5AH

The idea of this game is to trap a pig running around in a large pen and to contain it into one of two smaller pens located in two opposite corners.

The pig is represented by a bouncing ball, and you can "draw" walls in order to contain it by using the four direction keys, E,X,D and S. Occasionally the pig will break through the wall you have drawn

The program loads easily and there are two skill levels. At level one the game proves to be quite easy. But at level two you draw an invisible shield on the screen instead of a wall, and this time the game becomes very much harder, as you try to remember the location of your shield

Such instructions as are necessary are printed on screen at the beginning of the game and are adequate for this rather uncomplicated programme

All in all I found the game rather boring, with elementary use of graphics and sound.

D.B.

instructions	50%
playability	50%
graphics	30%
value for money	20%

★★

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Games that pit your wits against the Spectrum

Backgammon £5.95

Psion, 2 Huntsworth Mews, Gloucester Place, London NW1 6DD

Why buy a micro game when you can buy the board game for less money? Answer: because a game as good as this Psion version of Backgammon can be more enjoyable than the original

The graphics can be better than the original board and counters. These are. The computer may play better than your normal human opponent. This does. A micro game might teach you how to play, but a board game can't. The demonstration mode and suggested moves of this version make an excellent tutor.

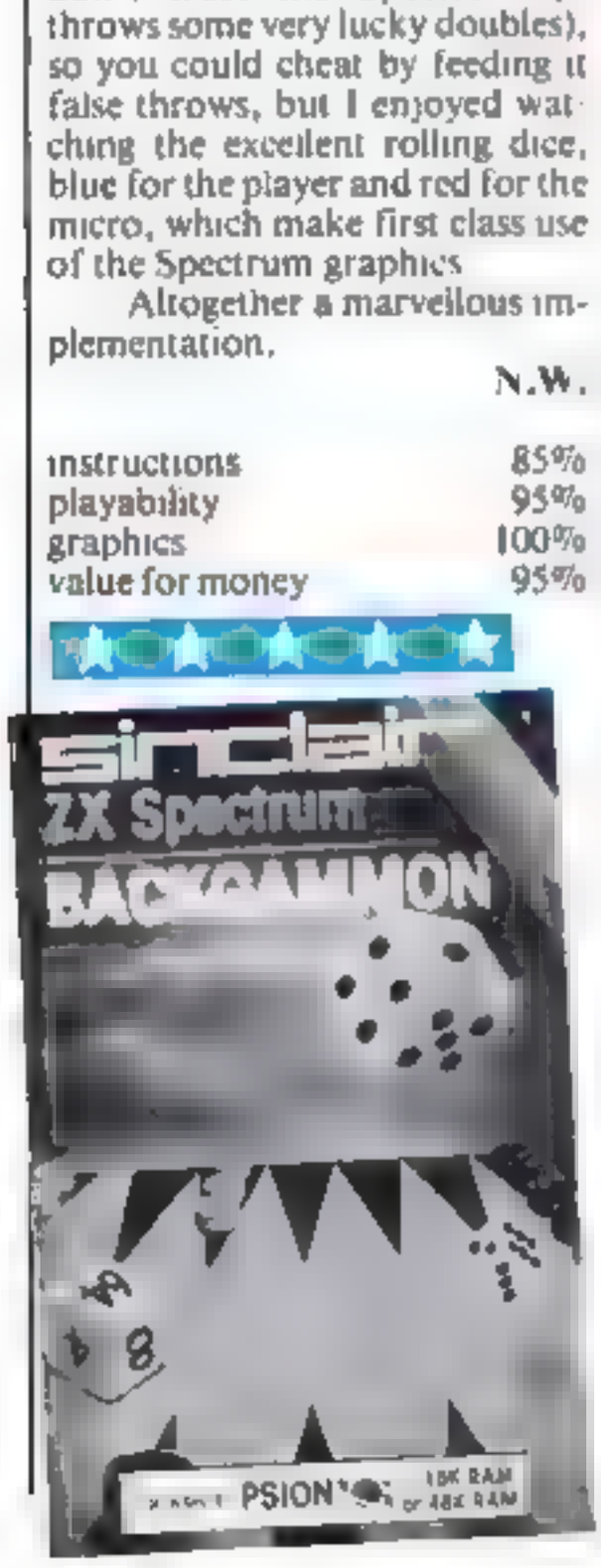
You can cheat in the board game. You can cheat the program by playing your move again. And again. And again — until you think you've got it right. And even then the program will probably defeat you. I found it easy to beat at level one, but could not beat it at the highest level, four

You have the option of throwing the dice yourself if you don't trust the Spectrum (it throws some very lucky doubles), so you could cheat by feeding it false throws, but I enjoyed watching the excellent rolling dice, blue for the player and red for the micro, which make first class use of the Spectrum graphics

Altogether a marvellous implementation.

N.W.

instructions	85%
playability	95%
graphics	100%
value for money	95%



The Knight's Quest 48K £5.95

Phipps Associates, 99 East Street, Epsom, Surrey KT 1ER

This adventure, in which the hero has to find treasures and return them to Camelot, combines features found in many different types of adventures.

For example, there are puzzles to be solved, including the usual one of discovering what words the program understands.

Its vocabulary is allegedly 160 words, but I haven't found them all. This means the program has a lot of potential — but there may be up to seven seconds delay as the program checks your input.

As well as all the standard text adventure features, this game allows a degree of combat, though the dragon was rather easy to kill

Some locations are illustrated by a picture in the top left corner of the screen. There are no interactive or moving graphics however, and no real-time action

A 'save' facility is included All in all, quite a good state-of-the-art adventure, which will get a great deal of play. My only criticism is the lack of originality in subject matter. **N.W.**

instructions	85%
playability	80%
graphics	85%
value for money	80%

Masterchess 48K £6.95

Mikro-Gen, 24 Agar Crescent, Bracknell, Berks

Chess-players with a 48K Spectrum will find this program ideal if they are stuck for a partner. With levels of competence ranging from 0 to 9, both novice and expert will be guaranteed a good game.

You can choose the colour of the board, the pieces and the background to suit yourself, although I found the display quite easy on the eye as it was Other options include setting up the board — marvellous for problems — requesting the computer to suggest a move, and saving a game.

At level 0 the game is very fast, getting progressively slower as you approach level 9, which as far as I'm concerned is championship chess.

I have seen other chess games for computers, but as far as I am concerned, this is the best so far, and should give hours of enjoyment to the chess buff. **B.B.**

instructions	95%
playability	100%
graphics	75%
value for money	100%

Sorcerer's Castle 48K £5.50

Mikro-Gen, 24 Agar Crescent, Bracknell, Berks

Sorcerer's Castle gets off to a bad start before the game itself even begins. While the game is being set up, you are supposed to be entertained by a clock face which, so the inlay says, is "worth waiting for". What you actually get is a sort of minute hand slowly making its way round towards 12 o'clock, with a rather halfhearted beep when it arrives.

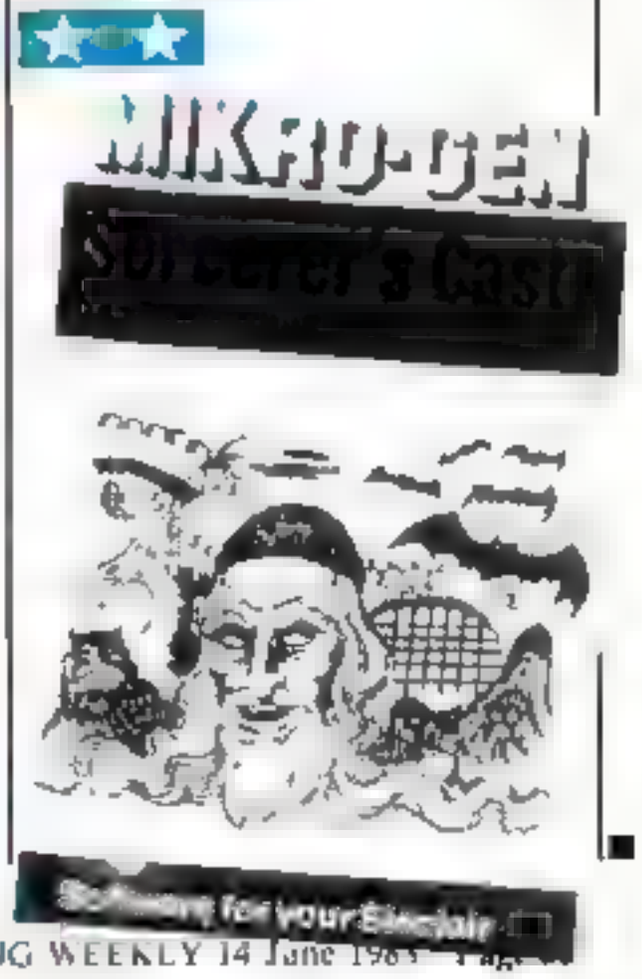
After that, you can choose which character you want to be, from elf to wizard, with intelligence, strength and dexterity being apportioned accordingly. Then you have a choice of things to buy, from armour to flares. Next the game proper starts — but will end promptly if you try to go North at your first input.

Your task is to enter the sorceror's castle and track down his crown. At any time during the game (unless, of course, you have been blinded) you can press m to summon a map and find out where you are. Cry h for help, and the menu of options will open to you

There are a lot of things to meet, and many things to pick up on the way round

But despite all this, the longest game I managed was about 20 minutes. A good idea in principle, which didn't work out in practice. **B.B.**

instructions	75%
playability	60%
graphics	25%
value for money	45%



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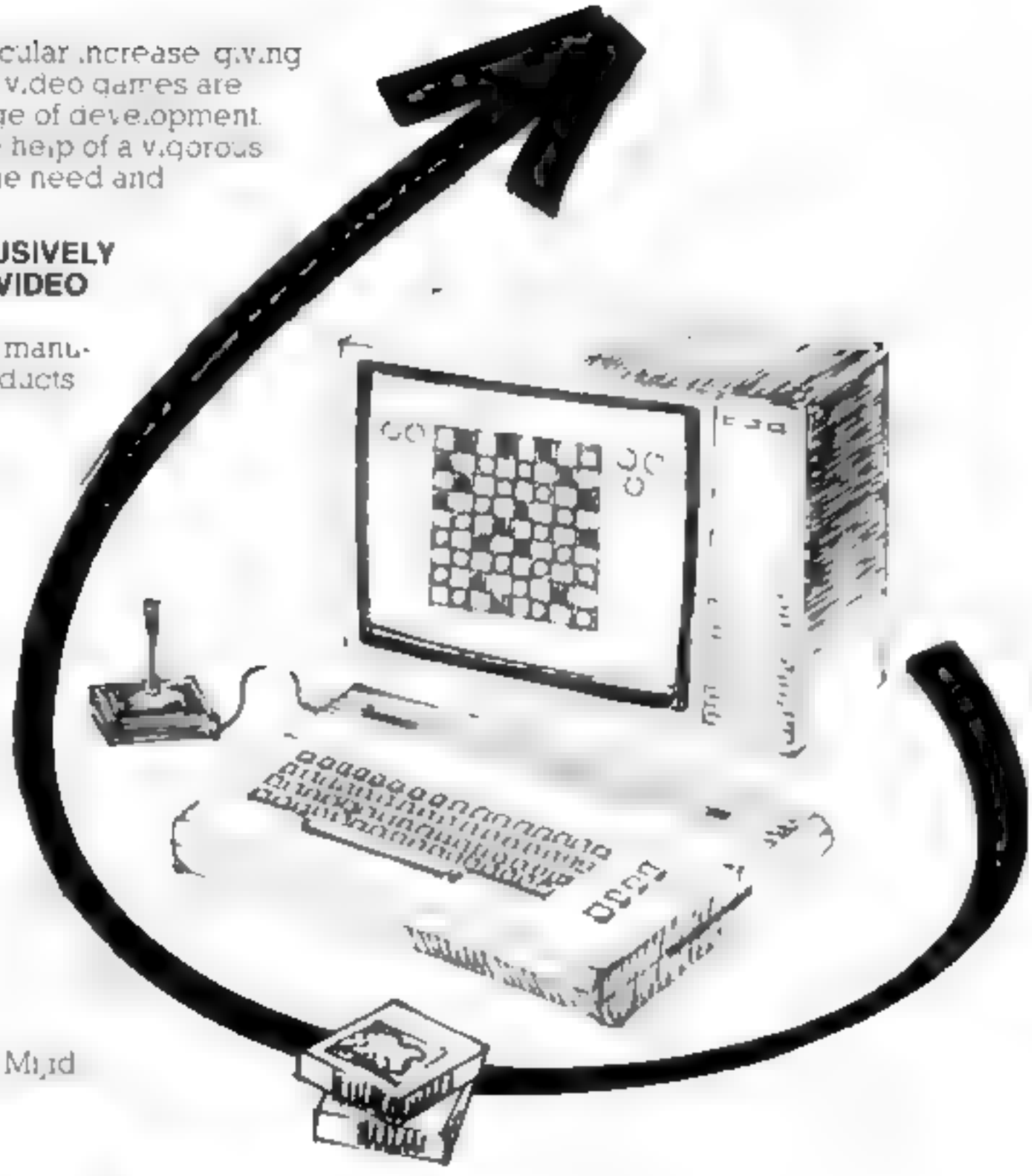

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What's new in games for your Atari

Marc Freebury takes a critical look at a cassette and three cartridges for the Atari 400 and 800

Gridrunner £8.50

Llamasoft, 49 Mount Pleasant, Tadley, Hants RG26 6B9.

Anything this cheap for the Atari can't be any good — or can it? My curiosity was aroused and I decided to try it out. I was glad I did.

Gridrunner is the fastest, most furious game I have ever seen. Mr Minter, the owner and programmer for Llamasoft, has taken great pains with this game.

To explain: some time in the future, a power grid has been set up in space, but has been infiltrated by grid bugs using the power to multiply. You, in your Gridrunner spaceship, must destroy them

There are several types of bug: Droids, the most common, act like centipedes, turning when they hit an obstruction Pods appear at grid nodes, then mature and fall as deadly missiles. The X-Y zappers send pulses of energy through the grid in the hope of frying you. There are 31 different grids to be blasted through.

Gridrunner is a fresh idea in a slowly decaying world of pacman rewrites. At the price, it is the best value for money around

instructions	70%
playability	95%
graphics	85%
value	95%

Soccer £35

A Thorn-EMI cartridge. From most Atari stockists

Soccer opens with a tediously prolonged title page, then displays the various options. Any combination of up to four human and two computer teams is possible, over four skill levels

After choosing sides you are presented with a typical Match of the Day elevated side view of the pitch, which is neatly marked out. The pitch extends over three screen widths, so when the ball moves off screen, the whole pitch scrolls.

Corners and throw ins are catered for, all punctuated by realistic whistles from the invisible referee. The players themselves are very detailed and clear.

The computer plays a mean game, never missing a pass or losing a tackle even at level 1. This team manager was less than pleased at a scoreline of 18-1 after 10 minutes.

The game can be played for 10, 45 or 90 minutes, although it's difficult seeing anyone play that long. There are some nice touches in this creditable copy of the Intellivision game, although I missed the crowd effects

instructions	50%
playability	70%
graphics	90%
value	70%

Sub Commander £35

A Thorn-EMI cartridge. From most Atari stockists.

Submarine Commander goes to prove that a life on the ocean wave is definitely hazardous. In this game, blasting shipping convoys is your aim

A clever opening page allows the skill level (1-9) to be chosen, then you go straight into the main screen. This shows a map of an area of ocean, with your sub and the fleets marked on it.

Also displayed are numerous dials and controls — confusing at first but you do get used to them.

First you run at high speed on the surface to a fleet, then submerge to periscope depth. A second screen shows a very realistic sonar, with the individual ships showing up as blips.

Now line up on a ship, and up periscope. Outlined against the sky, one of four types of ship. The torpedoes hiss from the tubes and strike, throwing huge water spouts in the air.

But watch out, the ships have guns and depth charges; crash diving too deep could rip open your hull

instructions	50%
playability	95%
graphics	90%
value	80%

Kickback £30

A Thorn-EMI cartridge. From most Atari stockists.

Kickback is based (loosely) on a little known arcade game, itself based on American football You can tell that because the game involves knocking out the opposing team as well as scoring goals.

You are given a clear aerial view of the pitch, and must try to hit the constantly moving ball in an effort to wipe out the opposing team and score goals.

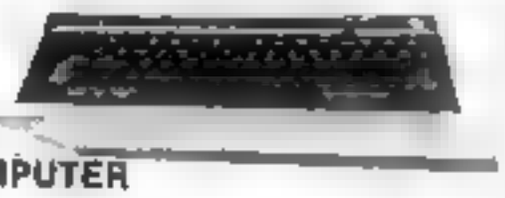
A moving forward and goalkeeper attempt to stop you, and score their own goals to remove one of your three lives. Penalties are incurred if you let the ball hit your baseline.

The game plays smoothly, with graduated difficulty levels and fair, if muted, sound effects. However there is little complexity and I was reminded of those ping-pong style TV games.

instructions	50%
playability	60%
graphics	70%
value	65%

What star rating does Home Computing Weekly give it?

BBC Microcomputer System



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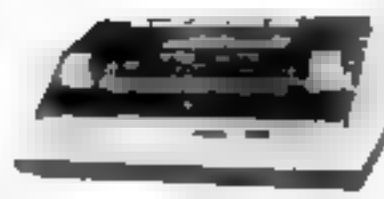

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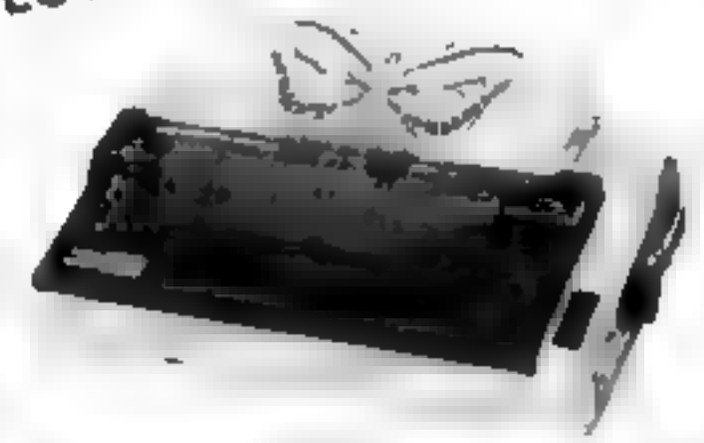

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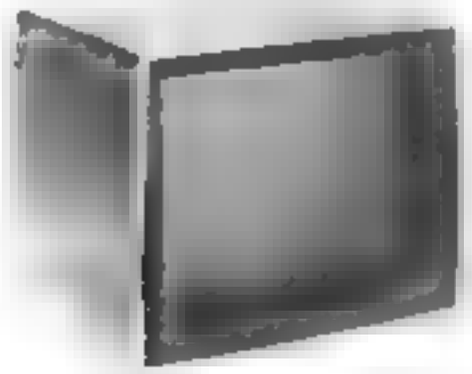

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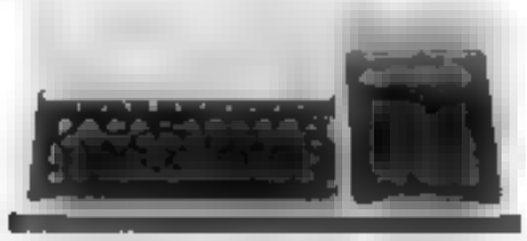

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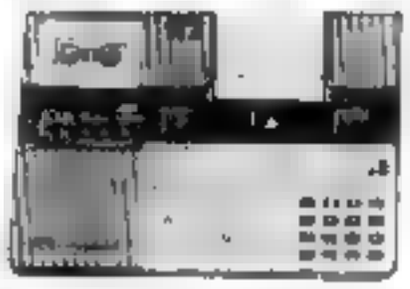

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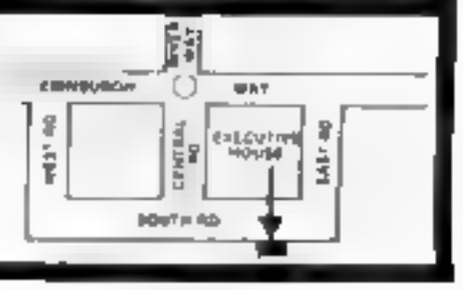


Play fast and furious — with your VIC

These new VIC-20 releases aim to test your reactions to the limit. Our review panel took up the challenge . . .

Gunfight £6.95

Sumlock, Royal London House, 198 Deansgate, Manchester M3 3NE

Programs from this company seem to be written carefully and with a high standard of attention to detail, and this one is no exception.

Two little men, one red and one blue, are placed in a random landscape of trees, cacti and rocks. In the two-player option, one man's movement is controlled from the keyboard and the others by joystick. A single player can play against the computer.

The length of play is preselected at between one and nine minutes, and a score of hits is kept. Play is fast and furious, and care must be taken not to be hit by a richochet off a rock. Cacti can be shot out of the way, but not trees.

At the end of the game, the victor celebrates his win while the victim lies prone. The only omission is a user-defined graphic vulture to circle the spot.

Not, of course, an original idea for a game, but this version should keep aspiring John Waynes off the streets from high-noon till high-half-past-three at least

T.D.

instructions	80%
playability	80%
graphics	90%
value for money	70%

★★★★

Destroyer £7.95

Sumlock, Royal London House, 198 Deansgate, Manchester M3 3NE

Destroyer is another variant of the Star Wars-type game. You control the movements of a destroyer and drop depth-charges on to craft in the sea below; ten points for killing the fastest of these, one for the slowest.

Life is made uncomfortable by torpedo and air attacks mounted by the VIC which cost you lives. Lose four lives and you lose the game. The bonus for avoiding attacks for two minutes is to find the attack frequently doubled!

A good score? 400-450 Evolving the best game-strategy is the real challenge. The hunted craft are random events, so chasing the fastest is not necessarily good play. Aficionados will have seen it all before.

My review tape had no instructions, either as leaflets or in program. I soon found the keyboard controls (no joystick control) for left, right and release depth charge, but it was quite by chance I discovered other keys programmed to shoot down attacking planes.

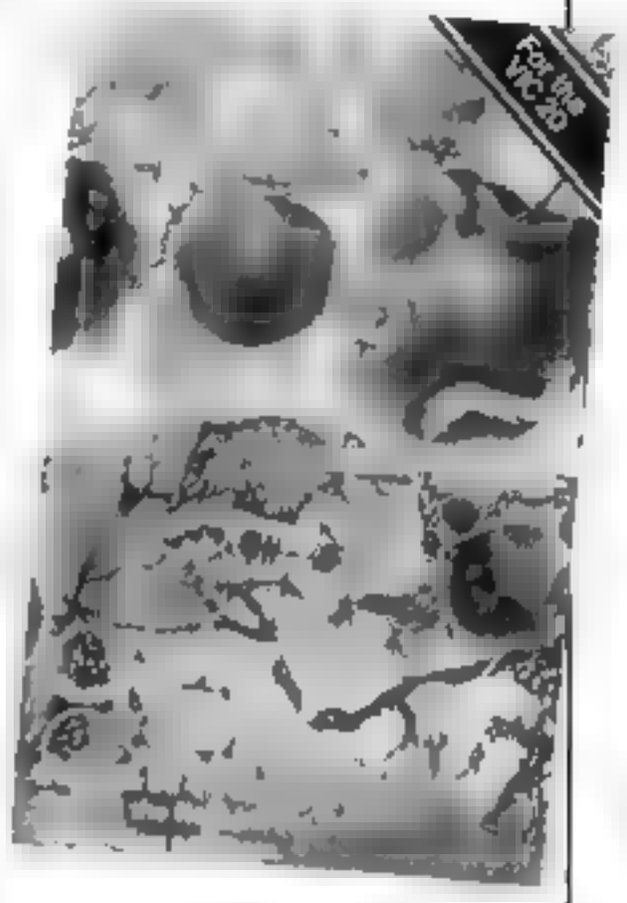
Graphics are good, clear and colourful with suitably distracting sound effects.

I could find no way out of the program, once I'd started playing. This is a common fault of such games. Am I alone in finding it annoying?

Nevertheless, Destroyer is fun to play and no less addictive than the many variations available. My 11 year old loves it! **R.J.**

instructions	0%
playability	70%
graphics	70%
value for money	60%

★★★



Crazy Climber/ Apple Bug £5.95

Lyversoft, 66 Lime St, Liverpool L1 1JN

In spite of the cover picture of a caveman menacing a giant tomato with a spear, Crazy Climber is in fact a game about a little man and his mission to collect flags from some very precarious scaffolding before it collapses. It is well packaged, loads reliably, gives good screen instructions and is fun to play

The companion program, Apple Bug, gives us control over the destiny of a hungry little insect as it consumes randomly positioned apples in a simple maze.

Alas, this program reflects the harsh reality of nature, for in this near paradise is a very nasty worm, determined to put an end to our little friend's lunch

If this happens our bug turns over and twitches his little legs in the air in a heart-rending fashion before expiring. "Wormed again" comments the program dispassionately

I would not recommend this pair to those of you with particularly sensitive natures, but they're just the thing for tough kids to enjoy. A "best score" would be a good addition though.

T.D.

instructions	80%
playability	90%
graphics	90%
value for money	85%

★★★★

Atom Smasher £9.99

Romik, 12 Church St, Slough, Berks SL1 1PT

Another action-packed game from Romik I doubt if it will oust their other best sellers, but it is an original game idea, well presented, effective graphics, and as usual squeezed into an unexpanded VIC

The target this time is a proton which moves position round a static nucleus whilst dodging the orbitting electrons. Each hit adds another electron to avoid.

The penalty for slow shooting is molten debris which closes in from the sides as the neutron melts down. You can shoot away the debris, but rapid hits on protons is the only sure way to halt its advance.

Collision with one of the ever-increasing number of electrons loses one of your three lives, shooting one sends them all madly whizzing round at breakneck speed for a short while. Anyway, all this is explained in the easy-to-read instructions program which loads the game proper.

Control is by joystick or Romik's standard key layout — well positioned and easy to use. I did find the manipulation of the laser a bit strange to start with, though. For example, pressing F1 (the up key) first turns the laser to face up then begins to move it up. So turning, moving a short distance, and turning again to fire is quite a complex operation

Romik has set a high standard in the past, and while Atom Smasher is not in the brilliant category (and not for pure atomic scientists) it is still a pretty good game.

B.J.

instructions	85%
playability	80%
graphics	75%
value for money	75%

★★★

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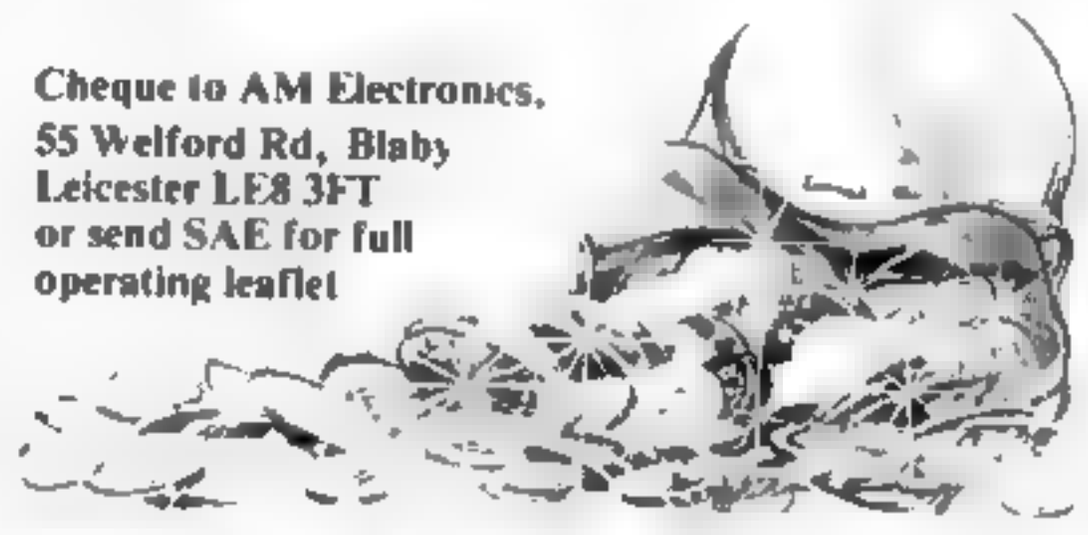

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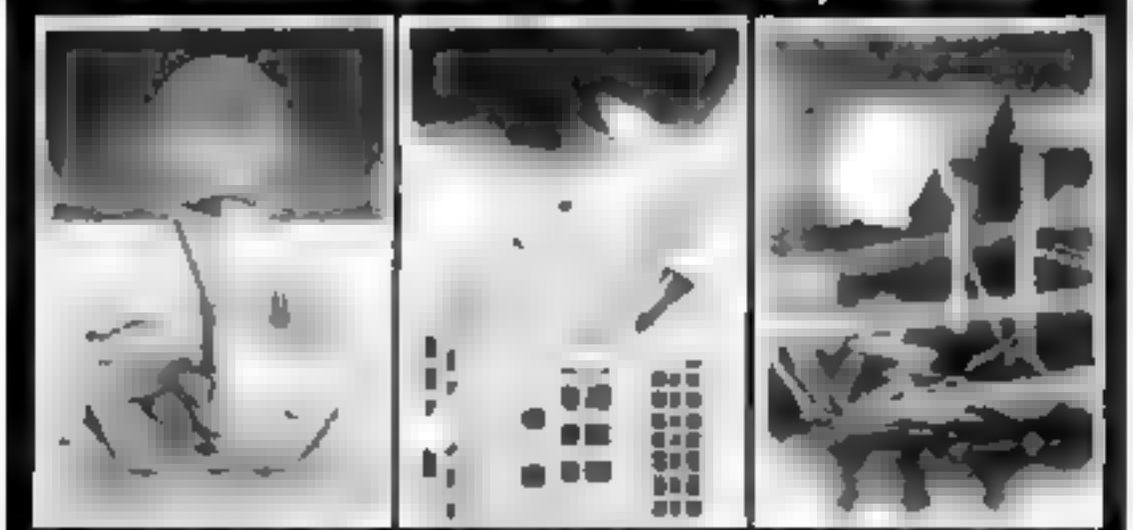

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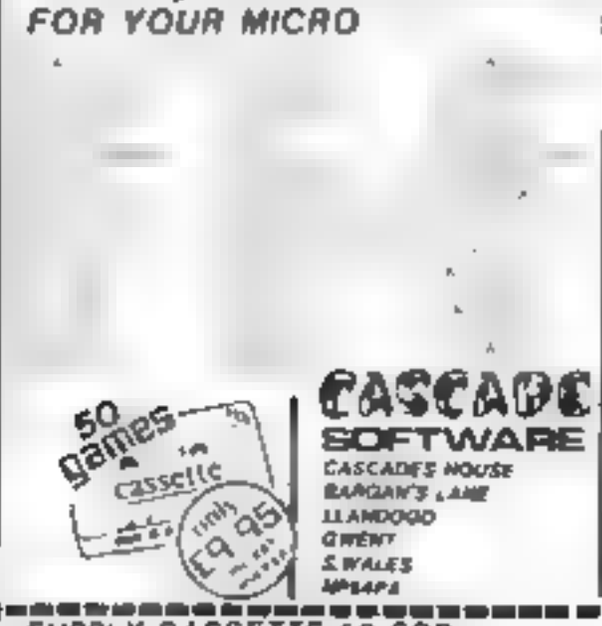

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When is a game not a game?

CCS's programs aim to educate as well as entertain — and they aren't, it seems, bought just by joystick-happy youngsters. Candice Goodwin talks to marketing director Tricia Peters about the calmer side of a frantic industry

There's one big problem with CCS's programs. How do you describe them? CCS isn't keen on the term "game". According to the company's marketing director, Tricia Peters: "Our programs are fun, and you can get a lot of entertainment out of them, but you can learn from them too." So for game, read business and strategy game, and you'll be nearer the mark.

The company's full name is Cases Computer Simulations, and that gives an even better idea of what its software is all about. Its five current programs give you a taste of what it's like to own a small business. In Auto Chef, for example, the object is to trade profitably so that your company amasses enough capital to take over Trust House Forte!

As well as a chef's hat, there are programs to let you take the role of farmer, a printer, an airline operator, and an oil magnate (pitting your wits against J. R.).

CCS was born in May 1982. Its founder and director is Melvin Lloyd-Jones, whose interest in computing dates back many years. Tricia said: "he used to work with computers in the days when they took up a whole room."

Working as a consultant, Melvin became interested in decision-making games for businessmen, and felt that there was room in the market for "more substantial" games that could show the full potential of home computers. So he wrote Airline for the ZX81, which was the micro he happened to own.

Airline is based on Freddie Laker's own airline business, and its appearance on the market coincided with Laker's now notorious financial difficulties. Laker's misfortunes worked to CCS's advantage, giving Airline extra, if unintentional, publicity.

CCS now has five strategy games for the ZX81 and Spectrum, plus two games converted for the Oric at Oric's request. Two new games are on the way, of which Tricia says, "we have tried to change the style a bit, but they're still what you might call intellectually stimulating."

The company is also working on material for "a new computer that's coming out", in close collaboration with the manufacturer. CCS's policy is, ultimately, to produce software for as many new machines as possible — unlike companies such as Psion and Rabbit, which concentrate on just two or three machines. Tricia makes a point of contacting every company with plans to bring out a new micro, with a view of converting CCS's software for it.

For Tricia, the software business was something completely new when she started working for CCS last year. Previously she worked in the wine trade, as salesperson for a firm of wine importers and wholesalers.

Her recruitment as a professional salesperson who could learn about computers, rather than a computer enthusiast trying a hand at sales, was a deliberate move. "Melvin's idea was to get away from the hobbyist market into a more commercial area" she says. "With micros increasingly being introduced into the office, he saw home computers as a way of introducing people to the idea of office micros.

"Computers are an obvious educational aid for kids, but they can also be used by people of any age who want to learn. We're trying to make the dads and mums join in."

CCS started off selling its wares by mail order, but is moving increasingly towards retail, in common with most software companies. Tricia would like to go further than this and have programs sold not only in computer shops and computer departments, but in outlets like record shops and newsagents, much as video films are now. "I think software will go the same way as the video market", she said.

As well as directors Tricia and Melvin, CCS consists of legal and financial adviser Richard Peters, Girl Friday Anne Williams, and two full-time programmers who work at home. Most of the programmers' time is spent in writing new programs and converting old ones to new machines, though they do some

Tricia Peters — a more commercial approach

tidying up on the few submitted programs CCS takes on. Tricia said: "we get a lot of programs sent in, but a lot aren't in our style."

Each CCS program takes about two weeks of solid research to create a realistic business scenario, followed by six weeks of programming. The result, it appears, is pretty convincing. According to Tricia: "we have regulars who are completely addicted to our programs. We got a lot of orders from people working on airways for Airline. And Autochef attracted a lot of orders from the catering industry.

"The audience for our programs covers a broad range from about 13 years upwards. We sell a lot to colleges, particularly for accountancy and business courses. And we're selling heavily in university towns".

CCS's experience shows that you don't have to be in the high-volume, highly competitive arcade games market to do good business. Its turnover for last year was a healthy £120,000. And Tricia added, "we're really seeing the breakthrough now."

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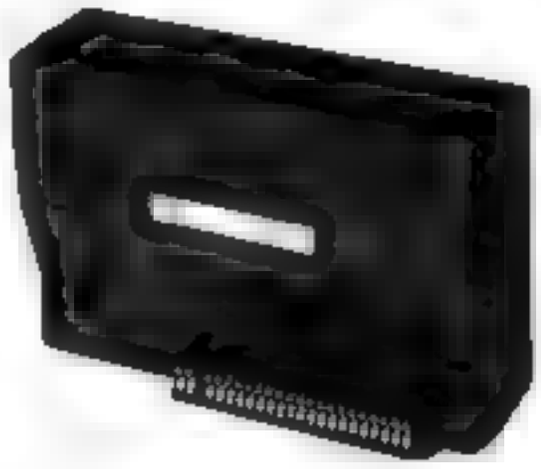

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